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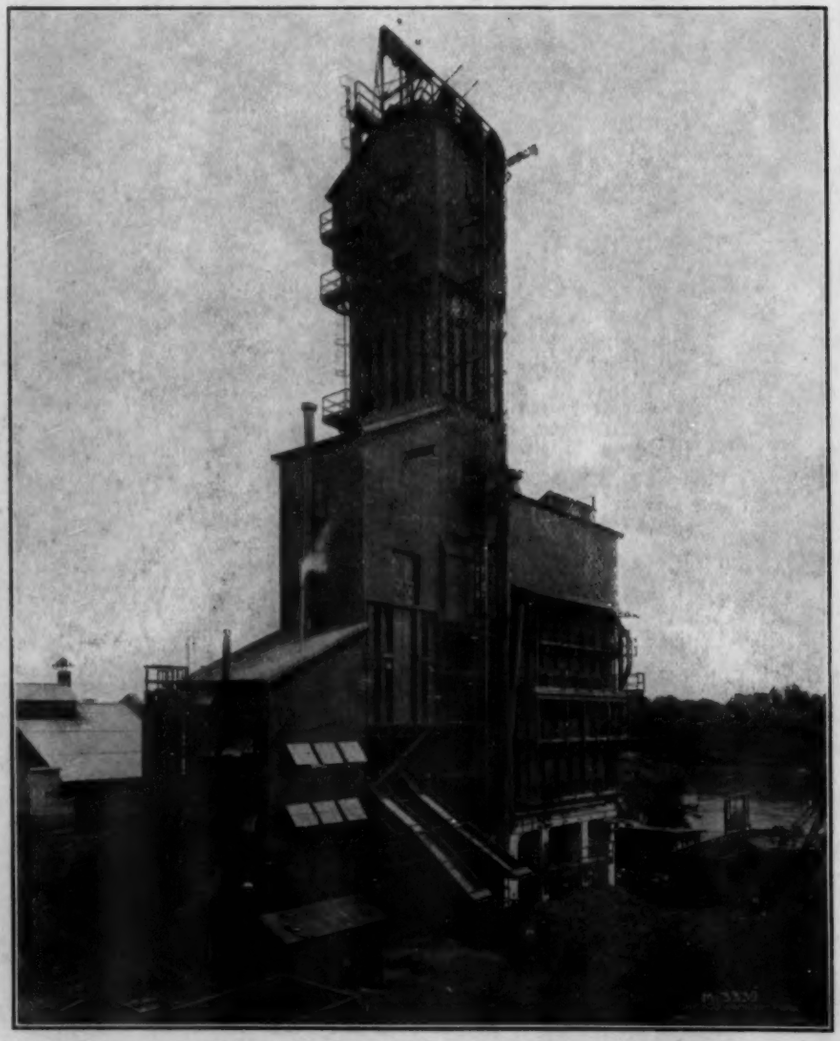

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ILLINOIS NORTHERN UTILITIES COMPANY
STERLING, ILLINOIS

The Koppers Construction Company

Designers and Builders of
BY-PRODUCT COKE AND GAS PLANTS

Chicago **Pittsburgh** **New York**

Vol. 127. Number 7 Whole Number 3645

American Gas Journal

Sixty-Eighth Year

September, 1927

Published Monthly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.

S. G. KRAKE, Pres. and Treas. A. M. GLEASON, Sec'y.

H. M. RILEY, Editor

EDITORIAL STAFF AUGMENTED

Mr. R. S. McBride, consulting chemical engineer, of Washington, D. C., is now associated with American Gas Journal as consulting editor. In this position he will assist in formulating editorial plans and policies and carrying out the work of American Gas Journal. Mr. McBride will retain his editorial connection with Chemical and Metallurgical Engineering of the McGraw-Hill Publishing Company and his consulting work with offices in Washington, D. C. Hence he will continue to be closely in touch with all government activities and national trends of interest to the gas business.

Mr. McBride graduated in 1908 from the University of Minnesota and subsequently did graduate work at the University of Wisconsin. He was later for ten years in charge of gas-engineering and gas-chemistry investigations at the National Bureau of Standards, during which time he prepared over one hundred publications on various chemical and engineering phases of the gas business.

Mr. R. H. Burdick, president, Great Lakes Utilities Corp., 30 Broad Street, New York, and formerly chief gas engineer of the Electric Bond and Share Co., will act as contributing and consulting editor. His activities will be concerned with various phases of gas plant management and operation.

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AMERICAN GAS JOURNAL, September, 1927. Vol. 127. No. 7. Published Monthly by American Gas Light Journal, Inc., New York, N. Y. Entered as second-class matter, January 1, 1917, at the post-office of New York, N. Y., under the Act of March 3, 1879.

Subscription $2.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada $3.00; foreign $4.00. Single copies 25 cents.

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Builders of STACEY Gas Holders for Seventy-Six Years

GAS HOLDERS

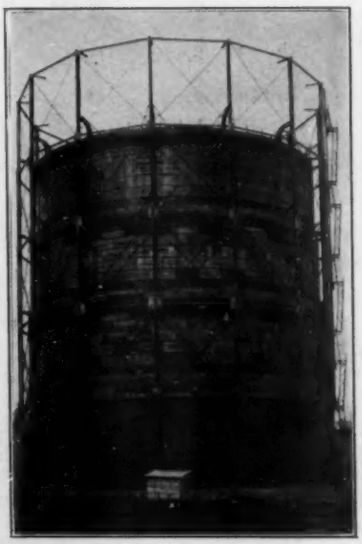
GAS PLANT EQUIPMENT

PURIFIERS

STEEL TANKS

CAST IRON VALVES AND FITTINGS

WELDED STEEL PIPE AND FITTINGS



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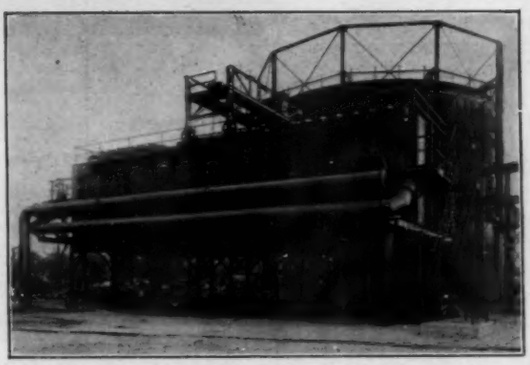

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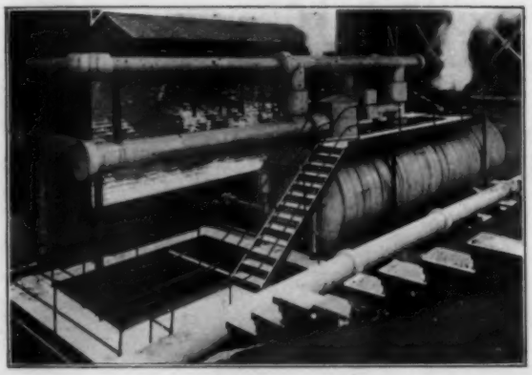

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As examples of the wide field of usefulness of the Smoot Accumulator and Smoot Control are the installations of an 8′ x 22′ accumulator with a 6 ft. water gas machine, and *4″* exhaust steam connections; also a 9′ x 40′ accumulator with 12 ft. machines and *12″* exhaust steam connection.

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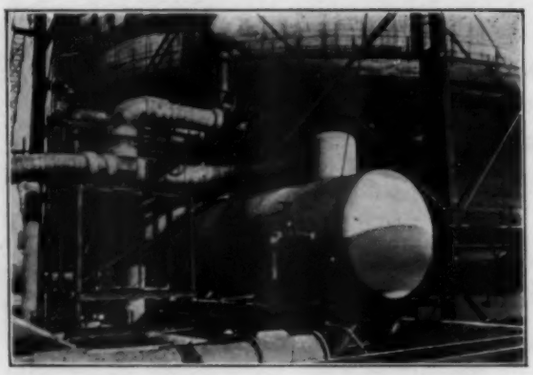

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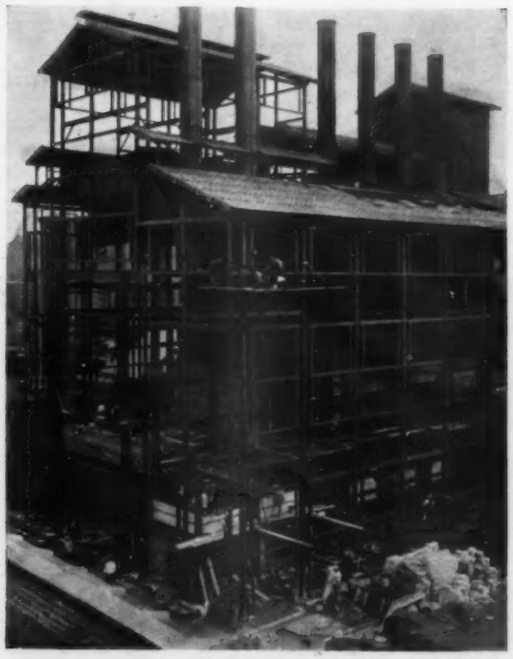

EXTENSIONS AT PAWTUCKET, R. I.

The first Glover-West plant for The Pawtucket Gas Company was built in 1915. After 12 years operation it is making daily more gas than its original guaranteed capacity. The new extension of 16 latest model retorts will have a capacity practically equal to that of the original 32-retort installation, the output being based upon results at the Fall River, Mass., plant which was installed for the same management company, Stone and Webster, Inc., Boston, Mass., in 1926.

WEST GAS IMPROVEMENT CO.

Builders of Coal Gas Plants

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CONCRETE PURIFIERS

with

Dry Asbestos Seal Covers

and

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The gate valve system is arranged along one side of the boxes.

THE

GAS MACHINERY COMPANY

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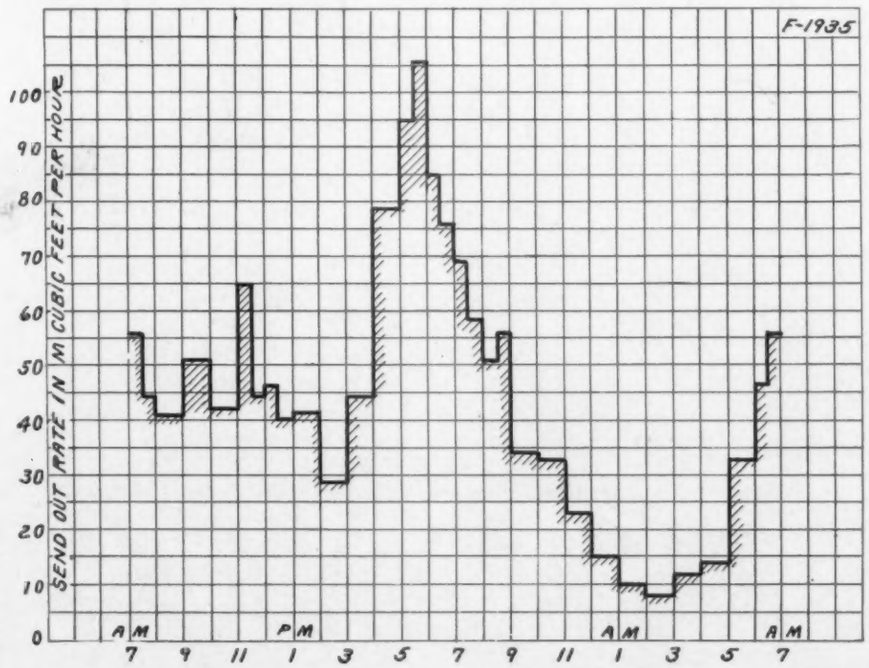
What Meter Would You Buy for accuracy under varying loads?



This "send-out" chart, with its wide variation between the low load of less than 10,000 cu. ft. to the peak of more than 105,000, may seem extreme, yet it is taken from actual operating conditions. It represents a problem of accurate measurement that many must solve in a greater or lesser degree.

Several years ago the question of the meter to be used for accurate measurement throughout such a wide range, was debatable. Today there is one answer.

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THE CARL STILL COMBUSTION SYSTEM, the American Branch of the Firm of Carl Still, Recklinghausen, i.w., Germany, has been changed to the Carl Still Corporation and is now fully equipped to transact business with the Gas Industry, under the basic patents granted to Dr. Carl Still, of the Firm of Carl Still.

Dr. Carl Still is a recognized Leader in the Field of Coal Carbonization and Distillation and inventor of the Still Multiflame Coke Oven and other successful apparatus, that have earned an enviable reputation abroad and in this country as well.

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GAS PLANTS

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GAS, COKE and BY-PRODUCTS

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COMPLETE GASIFICATION

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FOR

High and low pressure service with or without seal for spring or dead-weight adjustment

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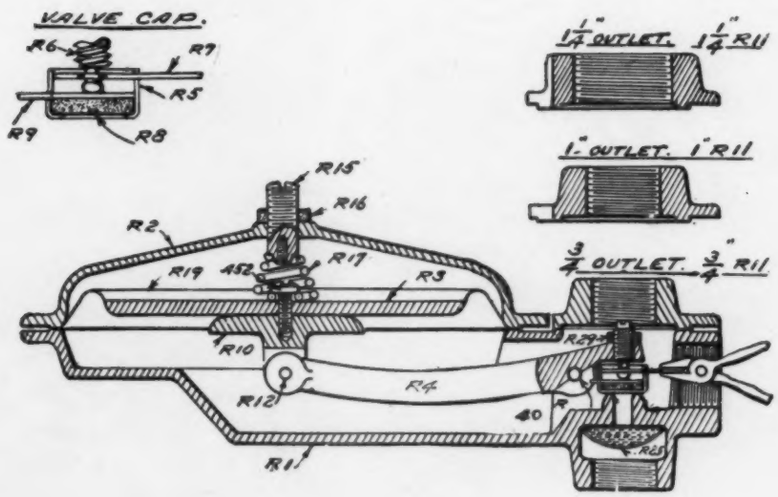

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CAST IRON PIPE

Has Established Its Own Reputation

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Cast centrifugally in sand-lined molds, the result produced is pipe that is as flawless as it is possible to make. It is dense, fine grained, free from impurities and inclusions and yet soft enough to drill, chip or cut easily. It is tough, resilient and high in tensile strength.

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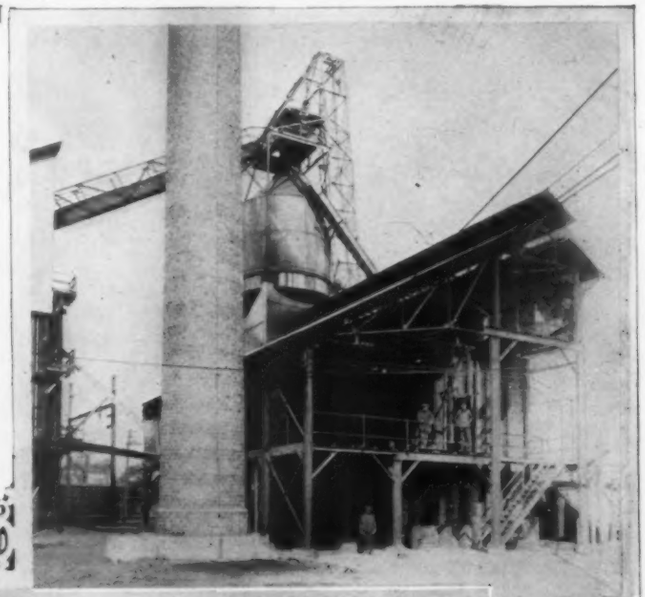

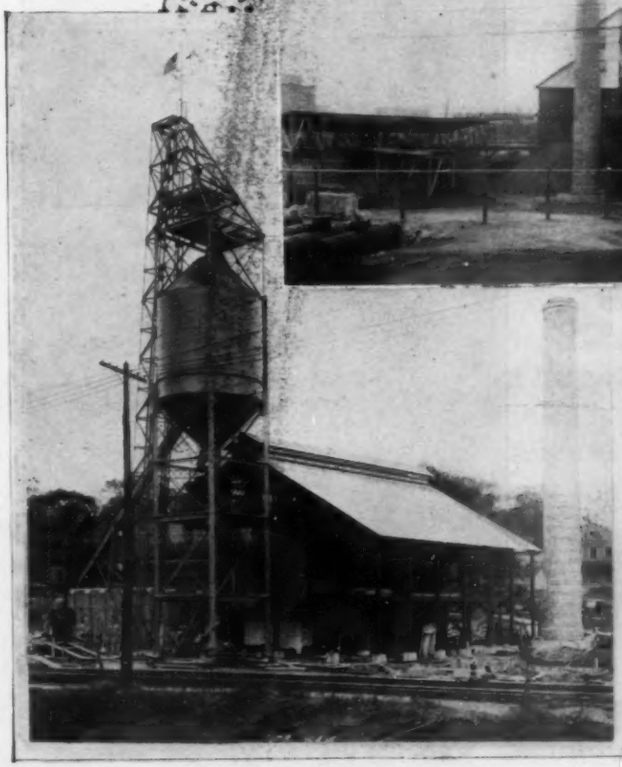

TOP VIEW—Showing installation of 750,000 cu. ft. daily capacity plant with "one shift" crew (3 men). Reclaiming coal from storage, operating ovens and placing coke in storage.

CENTRE VIEW—The plant after 18 months operation.

BOTTOM VIEW—The plant under construction.

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Coal gas benches and horizontal gas ovens of "IECO" design and construction are today operating in some of the largest and some of the smallest gas plants in the United States.

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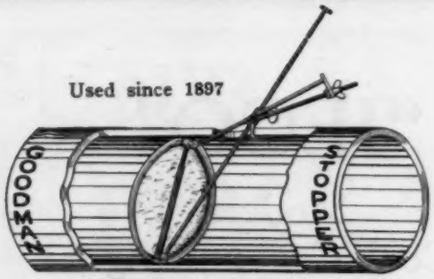
The two views show GOODMAN STOPPERS securely locked in a 30-inch pipe.

Be Sure and See the Goodman Stopper at the Chicago Convention in Booth 77—in the Basement—Stevens Hotel.



GOODMAN STOPPER
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Goodman Stopper

The Goodman Stopper has been used and endorsed by the leading Gas Companies of the United States since 1897, and is now being used in most of the foreign countries as well.

It is RELIABLE because its shut-off is positive and when properly inserted it cannot collapse.

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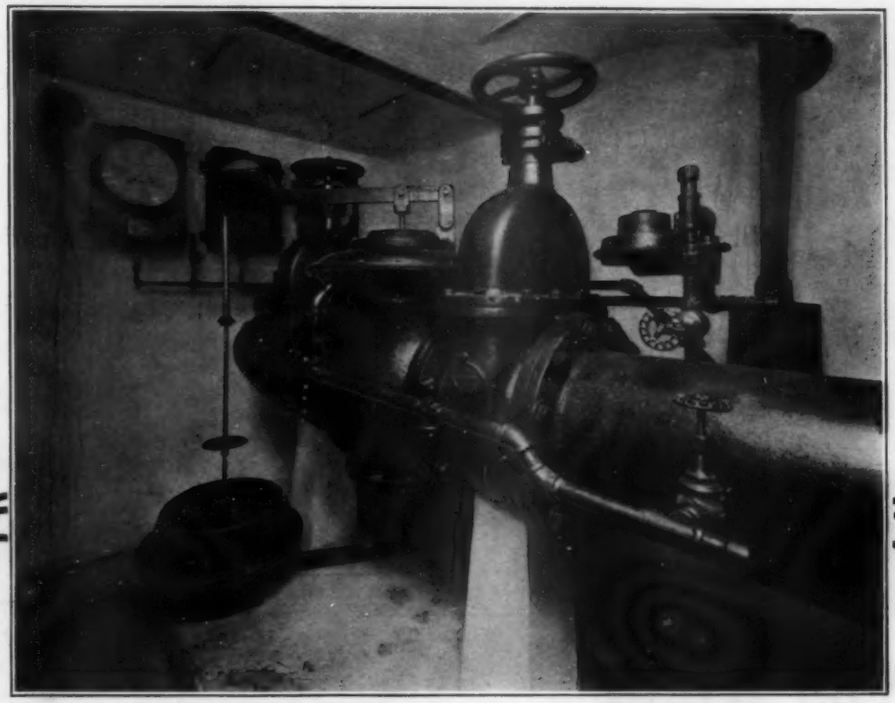

Actual photograph of 12" unit installed by Consumers Gas Co., of Toronto, Canada

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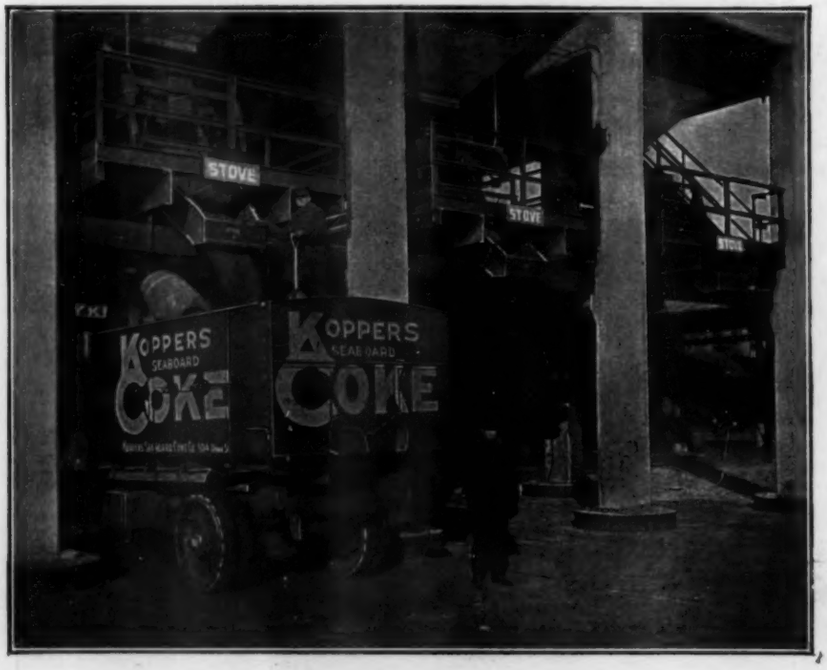
Anderson, Indiana
Established 1892

New England Representative: EASTERN SERVICE CO., Boston, Mass.



This view shows three, of a battery of thirteen Mitchell Electric Vibrating Screens, recently installed in the Union Street Plant of the Koppers Seaboard Coke Co., Brooklyn, N. Y.

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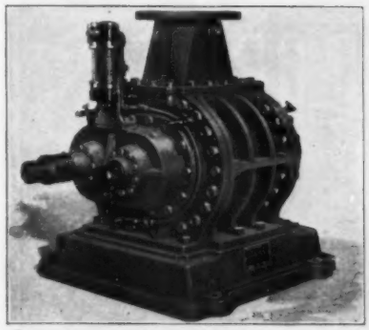
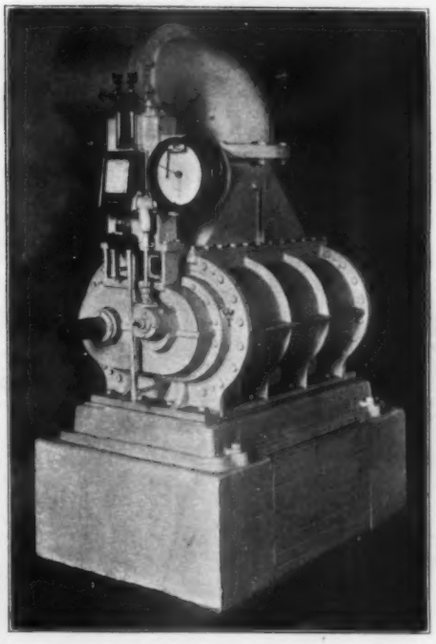
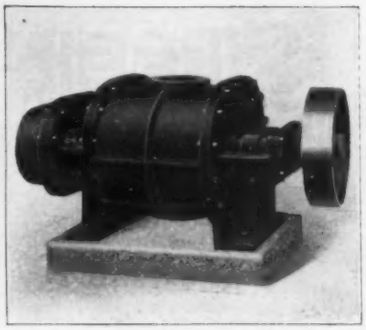
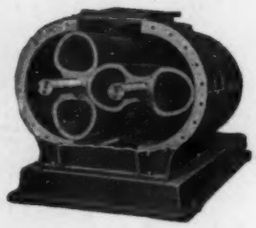






Roots Meters—Blowers and Gas Pumps—



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The P. H. & F. M. ROOTS CO.

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Peoples Gas Building

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Use Dresser Couplings in your mains and distributing system, and secure maximum efficiency. They are strong, flexible and durable, and will remain permanently tight.
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GROBLE GAS REGULATOR CO.

ANDERSON, INDIANA

Chicago Representative—Utilities Service Co., Peoples Gas Building

Detroit Representative—H. E. Broughton, 409 Donovan Building

Clip this Memorandum

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Exhibit of Regulators and Governors
BOOTH 93
American Gas Association
Convention
Hotel Stevens, Chicago
October
10-14
1927

The BARTLETT HAYWARD CO.

Engineers and Founders

BALTIMORE and NEW YORK

DESIGNERS AND BUILDERS OF:

Carburetted Water Gas Plants

Complete Coal Gas Plants

By-Products Plants

Salt Water and Fresh Water Condensers

De Brouwer Charging and Discharging Machines

Purifiers - Steel Tanks - Shaving Scrubbers

Vertical Waste Heat Boilers

Gas Holders

View of Main Plant, Located at Baltimore

AMERICAN
GAS JOURNAL
Established 1859 Pioneer of the Gas Industry
Including GAS INDUSTRY Est. 1900.

HENRY M. RILEY, *Editor*

GAS INDUSTRY MAGAZINES MERGED WITH AMERICAN GAS JOURNAL

GAS INDUSTRY — Manufactured-Gas Edition and Gas Industry—Natural-Gas Edition have been purchased by American Gas Journal and are merged with it in this issue of September, 1927. In making this purchase for consolidation of the three magazines which have served the gas industries for many years, American Gas Journal hopes and confidently expects materially to increase its opportunity and facilities for service.

It seems particularly appropriate that this enlargement of function of the Journal should come just at the time of the merger of the Natural Gas Association with the American Gas Association. There was quite as much need and opportunity for this merger in the publishing field as in the association activities of these two branches of business which are constantly finding greater community of interest as public utilities and a greater interlocking of actual business effort.

THE GAS INDUSTRY magazines were established and published by the late Lucius S. Bigelow, one of the best known men in the industry. He established the Manufactured-Gas Edition in 1900 and a few years later first published the Natural-Gas Edition. In his service as a publisher, as in all other participation in the affairs of the gas industry, Mr. Bigelow gave his best efforts to the upbuilding and the betterment of the industry. His service as one of the organizers of the National Commercial Gas Association, and as its first secretary, is but one of the evidences of his helpful aggressive service. Because of this service and because of his genial personality he will long be remembered by his many friends in both branches of the industry.

THOSE WHO HAVE been subscribers to the Gas Industry magazines will receive American Gas Journal for the remaining terms of their subscriptions. The Journal, in order to serve its enlarged list of subscribers, will give special attention by departmental matter and articles to the problems peculiar to natural gas men. The greater community of interest between these men and those engaged in the manufactured-gas branch of the business is, however, becoming constantly more evident. It is believed that today any subject of fundamental importance to either group is of almost equal value and importance to the other. The merger of the two great associations is bound to emphasize this community of interest still further and to cement more closely the friendships and affiliations which are already in existence.

AMERICAN GAS JOURNAL has long had active co-operation and encouragement from men throughout the manufactured-gas business. In its enlarged responsibility it hopes that it may deserve the same wholehearted support from natural-gas men. It will strive to render to them also a valuable and welcome editorial service.

The Aftermath of Preparing the Meal

BE the housewife ever so sparing in her selection of food for the daily round of meals, there is the ever-present definite percentage of victuals, before and after preparation, to be disposed of.

At best the retention and subsequent collection of garbage by the municipal authorities is the bane of millions of housewives. Particularly is this the case in the heated months of summer.

More, the getting rid of trash and other similar materials falls in the same category.

It would seem eminently banal to call to the attention of gas men the need for some sort of gas utilizing appliance to handle this situation in a clean and sanitary way. It is well known by them that properly designed gas fired incinerators will entirely fill the bill.

However, it is entirely in order to remind the aforesaid gas men that such appliances are available and that their widespread introduction will not only be profitable but will also fill a long felt want in the home and promote a maximum of cleanliness and reduction of the fire hazard.

In addition to the home, market houses appear to offer a fruitful field for the sale of gas fired incinerators—particularly when one calls to mind that section devoted to the sale of sea food.

The field is well worth cultivating.

Federal Tax-Cutting Is Still Fashionable

FEDERAL taxes are certainly going to be cut during the first session of the 70th Congress, which convenes in December. No one can foresee whether this cut will largely affect the corporation tax or whether other means, more attractive to the vote seeker, will be chosen. But the utility companies of this country have in this uncertainty an opportunity to serve themselves and all other corporations which they certainly should not neglect. This opportunity comes especially from the wide holding of public-utility securities by the general public.

Each one of such stock holders, though his holdings may be only five or ten shares, will directly profit from a cut in the corporation taxes. The stockholders of public utilities should be made aware of this. Perhaps it would be not amiss to advise them of the importance to your particular company of such a tax cut and to show them, when your next quarterly dividend checks are mailed, why they are as much interested in corporation taxes as in the tax on movie tickets and new automobiles.

There is no doubt that many of the minor nuisance taxes can and will be repealed. There is no doubt that great pressure will be brought to bear to repeal the federal estate tax, commonly known as the inheritance tax. And each member of Congress or clique in this august body will have its own pet theory as to the proper place for reducing Uncle Sam's income. None of these groups can, however, rightly deny the general public benefit from a proper and generous reduction in the present corporation tax from 13½ per cent. Utility companies can, therefore, join with other business in demanding such a cut with the full assurance that they are thereby working not only in their own interest, but also for the general economic benefit of the community as a whole.

The "Picayune" Jobs

THE industrial prospects that are located in any given community served with gas vary from the large, self-evident ones down to the smallest, which might only use a bare few thousand cubic feet per month.

Virtually every industrial gas manager draws a dead line through his list of prospects, dividing them into what he terms big and little prospects. It is this latter class which is the most difficult to classify and list for the reason that many of them are known only after a hazy fashion. They constitute the "picayune" jobs.

The possible summated consumption of gas that could be obtained from these small jobs will run to a figure of interesting magnitude. Further, this class of business is one that is usually simple to serve. However, the impediment in the way of getting a large portion of these small contracts on the gas company's books might be chargeable to the altogether freakish manner in which, at times, a salesman's mind operates.

There is considerable of satisfaction, not to mention a modicum, at least, of trumpet blowing, whenever a big sale is put over. We all like to bag an elephant or bear as against the less impressive squirrel or rabbit. But the flaw in this arrangement is that there are not so many elephants or bears to be bagged. Despite this condition, much time is wasted in following false scents as well as that which is utterly cast away in bemoaning the existence of such scarcity.

There is a deal of profitable action, if not sheer excitement, in hunting out and landing the "picayune" jobs. Some salesmen can, of a verity, wax almost affluent on such business; their only extra qualifications are the swallowing of a trifle of pride and the elementary ability to know where to ply their energy.

"Picayune" jobs are worth going after—there is profit in their obtainment.

Alexander Crombie Humphreys

THERE are many sterling attributes which constitute a heritage, as it were, of the gas industry in its over a hundred years of serving the American people.

From among these there stand out energy, determination and a will to carry on and render service, not only of the highest character but also undeterred and uninterrupted in its continuity.

Dr. Humphreys embodied these qualities to the fullest. His entire career was marked with a tireless energy and zeal that ultimately carried him to the topmost point in his particular lines of endeavor, which were truly manifold.

As an engineer and educator he has blazed a trail of service whose breadth and usefulness it will be well nigh impossible to calculate.

The gas industry will find it difficult to replace one whose wise counsel and unflagging interest have been so genuinely beneficial in its upbuilding.

Mechanical Indigestion

THERE is nothing more fatuous or financially distressing as the unintelligent purchase of mechanical equipment for supplanting or easing the burden of human toil. And the fact that there are so many nonsensical and utterly useless mechanical contraptions sold must perforce indicate that there is much of such unintelligent buying in evidence.

The past ten years or so have seen the development of many useful and ingenious pieces of mechanical devices and equipment for handling many of the tasks incident to the manufacture and distribution of gas. Indeed, it is not easy to comprehend how we would carry on in the present day were we to be suddenly bereft of such mechanical aids.

The fact persists, however, that one man's "meat" might be "poison" to another. And it would seem that the matter becomes truly poisonous when one has developed his mechanical equipment buying to the point where it becomes a mania.

Mechanical equipment should only be purchased after a thorough study has been made as to its adaptability under a given set of conditions. Such investigation should be carried out largely on the basis as to whether an operation can be lessened in cost, work made less toilsome at the same cost, or both of these desirabilities accomplished. If one's yearning for mechanical equipment will pass these acid tests then he should buy the device and buy the best obtainable.

Any other procedure will most surely result in mechanical indigestion, with a financial shortening of the breath of a quite distressing nature.

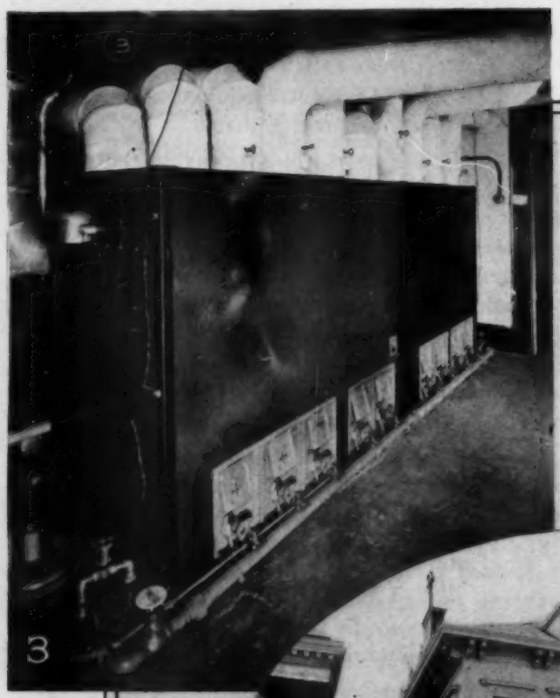
Selecting and Maintaining Refractory Materials

THERE is no industry which has more numerous or more complicated problems in the selection and use of refractory materials than does the gas industry. Not only does it use these materials in its own manufacturing plant, it must also use them in many of the appliances where its principal product is burned. Therefore, anything which aids in picking the proper refractory material or maintaining refractories for longer life and greater efficiency is welcomed by the gas man.

Elsewhere in this issue is an article from a practical works operator discussing some of these questions. A reading of that article is bound to stimulate and aid many others in both their works and their industrial gas sales. Comments from such men will be helpful to all readers and will be welcomed by American Gas Journal. How to do it right should be told; but how not to do it is also important and should be recorded to prevent others repeating your mistakes.

Editorial Notice

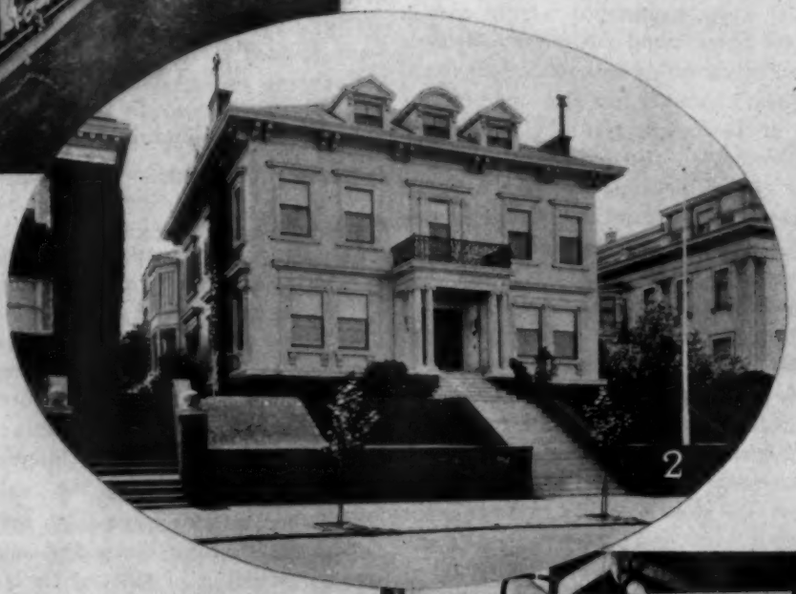
Due to the lateness in completing our plans for the taking over of the Gas Industry it was not found feasible to include in this issue as much material on the subject of Natural Gas as we would ordinarily have made provision for. This will be taken care of in future issues.



3

Gas-fired warm air furnaces used for heating home shown in oval below —

Seventeen Room Home in San Francisco — heated with warm air, gas-fired furnaces

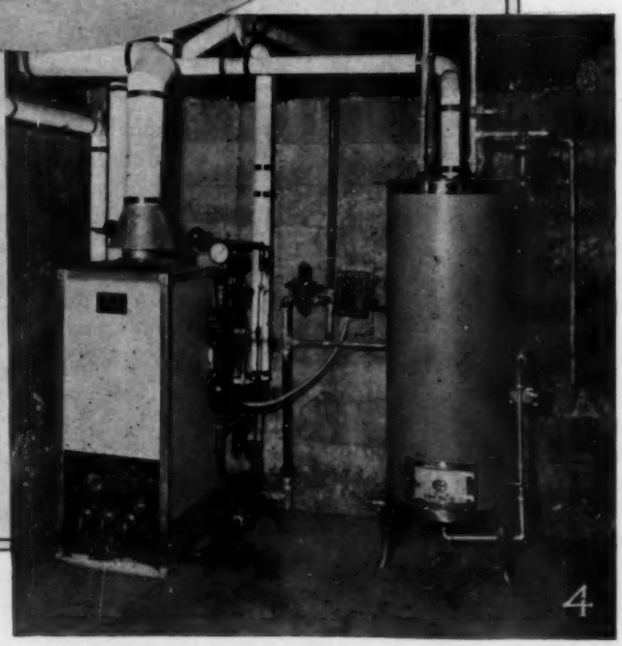


2

Equipment consists of:— Two Bryant Furnaces. Two No.3 Sturtevant Multivane Blowers

Furnaces Thermostatically Controlled

On Right:— Gas-fired steam installation supplying 375 feet of cast iron radiation in a nine room house



4

A Quality Gas Heated Home

Quality Heating Installations

By Ray Trowbridge

Supervisor Gas Sales, San Francisco Division, Pacific Gas & Electric Company

Your needs for heat
Are met complete
By Gas.

IN San Francisco, the city by the Golden Gate, we have a climate which is comparable with that of few other cities in the entire country, for while we have no great extremes of heat and cold, still there is no single month in which heating is not required. Even in the summer the prevailing winds from the West bring us that delightful chill, cool and invigorating, but which also makes it necessary for us to have heat in the home during the evening and early morning. These conditions are well illustrated in the Weather Bureau records where the mean temperatures for the past fifty years show the following:

January	50.0	July	58.5
February	52.4	August	59.1
March	53.7	September	61.2
April	55.3	October	60.3
May	56.6	November	56.4
June	58.5	December	51.2

and the annual average 56.1 degrees F. Considering a single month like June, 1927, the lowest temperature recorded was 54 degrees and the highest 77 degrees, with a mean of 59.8 degress and relative humidity of 90 per cent at 5 A. M., 63 per cent at noon, and 70 per cent at 5 P. M. In January the minimum was 41 degrees F. and the maximum of 61 degrees F. with a mean of 51.3 degrees and relative humidity of 92 per cent at 5 A. M., 71 per cent at noon, and 71 per cent at 5 P. M. The statistics just given well show our every day need for heat.

Seeking Heating Advice

And now Mr. and Mrs. Homeplanner appear on the scene at the Gas Company's office seeking advice on the heating of their new home. For many weeks they have discussed ways and means of building this home and adapting it to their every need as well as satisfying their taste for the beautiful in draperies, decorations and furnishings.

Included in the plans of the home today should be the consideration of the best heating system for that home, one which will operate with a minimum of effort, giving maximum service, and whose cost to install and operate is in keeping with the cost of the home.

Why, then, should Mr. and Mrs. Homeplanner consider gas for their heating system? First, because gas is a clean fuel and there will be no soot or dust to soil the new draperies so carefully selected, nor to disfigure the walls and light finished woodwork. Second, because it is easily controlled by automatic devices which require the minimum of attendance. Third, gas supplies the warmth which a home should have and its mistress will be proud to invite her friends to enjoy its comfort. Fourth, Mr. Homeplanner will find the gas installation the most value received for the money spent. Also the gas furnace adds to the real estate value of the house, making it more saleable, should he desire to dispose of it. Fifth, a review of the cost of operation of several typical installations will show him that gas is a highly efficient fuel and the cost of operation reasonable.

Outline of Code

In order to insure that Mr. and Mrs. Homeplanner get the correct installation the Gas Appliance Society of California, through their gas heating engineering committee, has an official standard code of general installation specifications for gas fired warm air furnaces. This code includes the following five cardinal points embodied in the official standard code shown in Figures 1 and 1A.

1. A furnace should have ample heating capacity and be supplied with a minimum of 100 cubic feet of gas for each 5,000 cubic feet of space to be heated. This insures sufficient capacity to quickly heat the home. The furnace should be centrally located and the leader pipes not over 15 feet in length unless a fan is used. The leader pipes should have a rise of at least one inch for each foot of length.

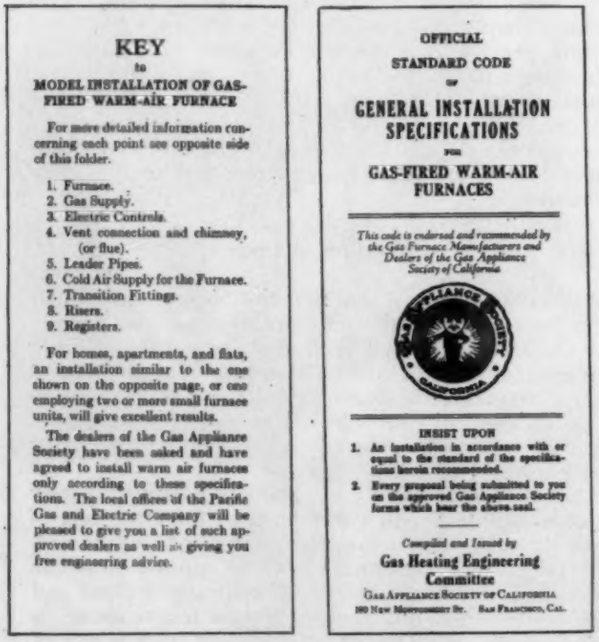
2. The leader pipes from the furnace to the registers on the first floor or to the risers to other floors should be of sufficient size to insure an even flow of a large volume of warm air rather than a smaller volume of higher velocity hot air. Risers should always be on an inside wall. An 8-inch leader pipe should be the minimum used and will take care of a 10 by 12-foot room. A 9-inch or 10-inch leader will supply a 14 by 20-foot room, and a 12-inch leader will heat a room 16 by 25-foot in size. Transition fittings from leader to register, or leader to riser should be of easy sweep with ample throat size, so not to restrict the flow of the warm air.

Insulation Requirements

3. Insulation should be installed around the top of the furnace and Air-Cel asbestos applied to all leader pipes. Single weight is essential and double weight better in some cases. This insulation assures that approximately 90 per cent of the heat generated by the furnace reaches the point where it is most effective, and the saving in fuel is easily 15 per cent.

4. There should be a cold air return centrally located. The hall is usually the chosen location. There are many advantages in this, for through the recirculation of the air more uniform temperatures are maintained in all parts of the home and cold floors are eliminated. In the average home built for California's climate at least one air change takes

place per hour and probably one and one-half to two changes take place so fresh air is constantly entering the circulating system without being injected in one cold stream which would occur if taken into the furnace directly from out of doors. Further, a saving of about 20 per cent fuel is made through the cold air return. The area of the cold air return should



KEY
to
MODEL INSTALLATION OF GAS-FIRED WARM-AIR FURNACE

For more detailed information concerning each point see opposite side of this folder.

1. Furnace.
2. Gas Supply.
3. Electric Controls.
4. Vent connection and chimney, (or flue).
5. Leader Pipes.
6. Cold Air Supply for the Furnace.
7. Transition Fittings.
8. Risers.
9. Registers.

For homes, apartments, and flats, an installation similar to the one shown on the opposite page, or one employing two or more small furnace units, will give excellent results.

The dealers of the Gas Appliance Society have been asked and have agreed to install warm air furnaces only according to these specifications. The local offices of the Pacific Gas and Electric Company will be pleased to give you a list of such approved dealers as well as giving you free engineering advice.

OFFICIAL
STANDARD CODE
OF
GENERAL INSTALLATION SPECIFICATIONS
FOR
GAS-FIRED WARM-AIR FURNACES

This code is endorsed and recommended by the Gas Furnace Manufacturers and Dealers of the Gas Appliance Society of California

INSIST UPON

1. An installation in accordance with or equal to the standard of the specifications herein recommended.
2. Every proposal being submitted to you on the approved Gas Appliance Society forms which bear the above seal.

Compiled and Issued by
Gas Heating Engineering Committee
Gas Appliance Society of California
180 New Montgomery St. San Francisco, Cal.

Figure 1

be at least equal to the combined area of all leader pipes of the furnace. Where warm air systems are installed in apartments or flats it has been the usual practice to leave out the cold air return, or install it only on the first floor. There is now being installed a cold air return in an apartment house under construction carrying it up to the upper floor along with the stairway to that floor.

Ample Registers

5. The registers should be large enough, their proper area being at least equal to the area of the warm air pipe supplying that room.

Besides these five cardinal points other desirable features can be mentioned. There should be a copper, or terra cotta flue pipe from furnace to chimney with draft tee or other diverter to prevent backdrafts. There should be ample gas supply in a separate line from the meter to the furnace only, to insure sufficient gas to operate the furnace under all conditions. These points cover what we consider a 100 per cent job. A good warm air furnace coupled with a proper installation is a lasting satisfaction to the owner and a recommendation to other home builders and owners. Each room will heat quickly and evenly and to the desired temperature. Further, efficient operation is coupled with reasonable operation cost.

What Will the Cost Be?

"But," asks Mr. Homeplanner, "what is all this going to cost me?" Where the roughing-in work is already done for a medium priced furnace, for an average home of from 6 to 9 rooms, the cost is about $60 per room to be heated. When risers, register boxes, etc., have to be placed in a home already built the cost runs approximately $75 per room. For the larger homes of 20 to 30 rooms, and where a higher priced furnace is used, the cost will run $100 to $125 per room. One of the latter is illustrated in the home of an oil man. This heats 17 rooms and the halls of a three-story home. The system consists of two Bryant warm air furnaces with two No. 3 Sturtevant multivane blowers driven by individually controlled electric motors, a blower for each furnace. A thermostat, with its eight-day clock, turns on the furnace and controls the hours when heat is desired, while mercoid switches start the motors to drive the blowers when the thermostat turns on the furnaces. A photograph of this home is shown in Figure 2 and the furnaces in Figure 3 on the frontispiece.

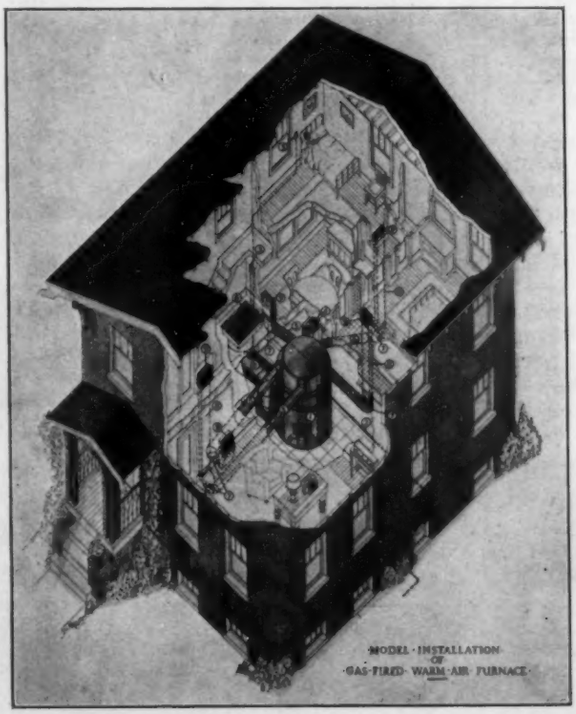


Figure 1A

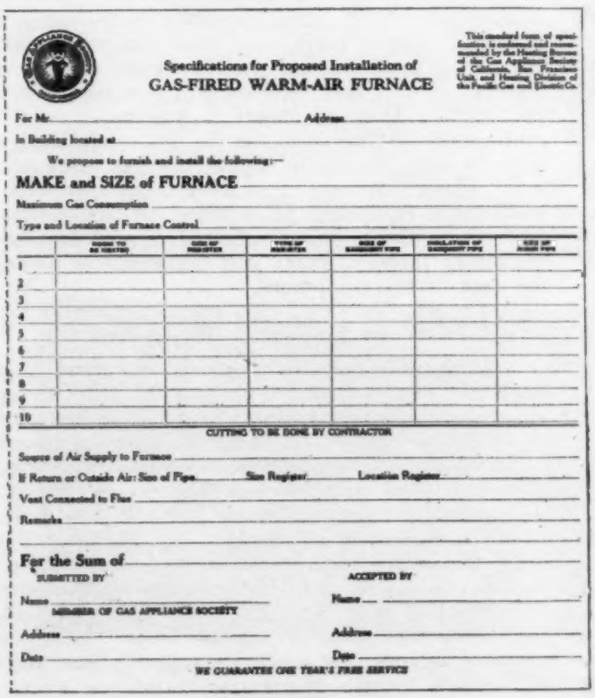
The cost of operation for a home of this size is well illustrated in the complete gas bills covering heating, cooking and water heating for the year:

May	44.7M cu. ft.	$37.77	Nov.	36.0M cu. ft.	$30.98
June	38.3 "	32.77	Dec.	75.0 "	61.15
July	33.0 "	28.64	Jan.	75.8 "	61.73
Aug.	11.5 "	10.76	Feb.	81.6 "	65.97
Sept.	13.6 "	12.52	Mar.	69.8 "	52.66
Oct.	35.0 "	30.20	Apr.	49.4 "	41.43
		Total	557.7		$466.58

The average estimated cooking and water heating load is $15 monthly, making the heating cost $286.58 per season or an approximate average of $24 per month. January is usually the highest bill in many cases, including the two holidays, Christmas and New Years, with the extensive entertaining done during that season, but this is also the coldest month.

Other Heating Systems

This article would not be complete without a brief mention of other forms of centrally fired gas heating systems. Steam and hot water boilers of ample size and properly installed also give lasting comfort and satisfaction to the home owner. The cost of installing either one of these systems is, however, more than the warm air furnace and in our climate the majority of the jobs are warm air. The photograph in Figure 4 (see frontispiece) shows a gas fired steam installation supplying approximately 375 feet of "Certo" cast iron radiation in a fine residence of nine rooms. A clock thermostat located in the entrance hall controls the system, which is proving highly satisfactory to the owner. While this particular job has not operated long enough to give a complete year's bills it will be heated for approximately $175 for the season.



Specifications for Proposed Installation of
GAS-FIRED WARM-AIR FURNACE

This standard form of specifications is endorsed and recommended by the Heating Bureau of the Gas Appliance Society of California, San Francisco Unit, and Heating Division of the Pacific Gas and Electric Co.

For Mr. ____ Address ____

In Building located at ____

We propose to furnish and install the following:—

MAKE and SIZE of FURNACE ____

Maximum Gas Consumption ____

Type and Location of Furnace Control ____

	ROOMS TO BE HEATED	SIZE OF REGISTER	TYPE OF REGISTER	SIZE OF RISER PIPE	INSULATION OF RISER PIPE	SIZE OF RISER PIPE
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

CUTTING TO BE DONE BY CONTRACTOR

Source of Air Supply to Furnace ____

If Return or Outside Air: Size of Pipe ____ Size Register ____ Location Register ____

Vent Connected to Flue ____

Remarks ____

For the Sum of ____

SUBMITTED BY

Name ____

MEMBER OF GAS APPLIANCE SOCIETY

Address ____

Date ____

ACCEPTED BY

Name ____

Address ____

Date ____

WE GUARANTEE ONE YEAR'S FREE SERVICE

Figure 5

At the present time we act as consulting engineers only on all house heating problems presented to us and turn over to three or four heating firms all installation work, allowing leads or tips from our office to go to these men whom we know will put in 100 per cent jobs, and as long as they continue to do so they get leads from us. They submit their bids to Mr. Homeplanner on approved Gas Appliance Society forms which bear the seal of the society and which contain the necessary specifications for a 100 per cent job. In case two bids are submitted it is an easy matter for Mr. Homeplanner to compare the two on these standard forms, one of which is shown in Figure 5.

Good and Poor Jobs

A good illustration of the difference between a good and a poor job may be given in two homes of the same number of rooms, built by the same builder, occupied by the same sized family, and heated by the same make of furnace. The one owner was willing to pay the extra cost of a quality job and his bills are approximately one-half that of his neighbor who installed a furnace heating system without the recommended specifications.

Advertising is another feature of our effort towards better house heating and we use the five daily San Francisco papers as well as thirty-three community papers in this work. Last year the Gas Appliance Society had a fall heating campaign and displayed many types of heating appliances, not only illustrating central plants, but also auxiliary forms of heating, such as radiators, radiant heaters and floor furnaces. The heating committee of the Gas Appliance Society is now planning for this fall's campaign, which will doubtless work out new features to be emphasized. We feel that educating the public to appreciate what a quality installation is and how to obtain it will do much to secure this house heating load.

Making fires
No thot requires
With Gas.

AMERICA WANTS HOT WATER

The American boy who hates to have his face washed and simply won't have the region behind his ears cleansed is the exception rather than the rule. Facts and figures gathered through trained investigators of the American Gas Association in a nation-wide survey of gas customers revealed that more people are willing to pay for the convenience of hot water than for freedom from heating with coal and the consequent furnace tending and ash removal.

More than 55 per cent of those interviewed in all income classes are willing to shoulder additional costs to have efficient hot water service, while 48 per cent are anxious to pay more money in order to gain freedom from the back-breaking "exercise" of tending coal furnaces.

"While these figures reveal rather startling facts," a prominent official of the association says, "it is significant that the public appreciates cleanliness as a virtue and wants to be clean.

"Gas is almost without competition in the field of water heating, being preferred nine to one over coal."

Economies Effected by the Use of Mechanical Equipment in Distribution Work

By George Wehrle

Superintendent, Gas Department, Public Service Gas Company of Colorado, Denver, Colorado

Trenching in the 20th Century. One Man Does the Work of Thirty Men and Does a Better Job.

MECHANICAL equipment which increases the efficiency and economy of doing work has quite generally been alluded to as labor-saving machinery. This is a misnomer, which has frequently resulted in opposition by those engaged in manual labor. If we must refer to labor in this connection, a better name would be "labor conserving machinery," for it is better sounding and more indicative of the purpose in mind. As a matter of fact, if labor were not conserved by the use of mechanical equipment there would not be enough to go around and the problem would not be a question of price, but of supply.

Mechanical equipment is not used today for the sole purpose of conserving labor, but is also used to increase quantity and quality production. Without its use civilization would not progress. By its use we are able to obtain quantity production at lowered unit costs and of better and more uniform quality.

Product Is Service

The product of the gas company, and that which it has to sell, is service. The manufacture and distribution of gas are only component parts of this product. Our problems and our uses for mechanical equipment are different from those presented by the usual factory, or industrial establishment, where the employment of labor is concentrated in one place. Our employees are scattered over an entire city, where the various tasks necessary in the sale of gas service are performed. The increasing of efficiencies and economies are therefore more difficult of attainment in gas distribution than they are in most other businesses.

The use of mechanical equipment in the gas business, as in other businesses, depends largely upon the volume of work being done. It cannot usually be economically employed unless there is enough use to justify the investment in return over each annual period. A small property installing a few thousand feet of main each year can never justify the use of a mechanical trencher, even though substantial savings may be shown in unit cost of doing the work. The equipment is profitable in direct proportion to the time it is in operation, and actually costs money in capital charges when not in use. Quite frequently, however, the purchase of mechanical equipment is justified on one particular job, where the economy effected is sufficient, after deducting interest, taxes and depreciation, to equal the cost of the equipment.

When Equipment Is Justified

Any piece of equipment which will earn in savings over former methods an amount equal to capital charges, including amortization over the period of its useful life, is justified. As an extra measure to the tangible saving will be other advantages, such as better work and efficiency in the rendering of service, accruing from its use. Since it is difficult to show the latter advantages on a balance sheet, they should not receive too much consideration in a cost analysis prior to the purchase of equipment.

Just a few years ago practically all gas distribution work was done by manual labor. Labor was plentiful and its cost was comparatively low. If we had a mile or two of main to install we went out on the street corner and whistled and soon had a couple of hundred men rushing to the tool box for picks and shovels. But those days are gone forever. Labor is not to be obtained that way any more. As stated before, it is not the question of price, the men are just not obtainable, except with extreme difficulty. Necessity being the mother of invention, the last few years have seen numerous kinds of mechanical equipment perfected for use in gas distribution work; the trencher, the backfiller,

the portable compressor for breaking pavements, caulking, etc. All have filled a long felt want and are in general use throughout the gas industry, effecting a lowering of costs that have been essential to its existence. Designers and manufacturers of equipment have been resourceful and generous of their time, and we have them to thank for the many kinds of good equipment now obtainable.

Light Trencher Has Saved Money

The light mechanical trencher has probably been the outstanding piece of equipment designed in recent years and that which has saved gas companies most money. True, there have been trenchers on the market for years, but they were so large and cumbersome and high in price that we could not well adapt them to our work in city streets. The advent of the light and readily portable trencher, which can be purchased at reasonable prices, has put this equipment within the reach of most all gas companies, and they are now in common use.

It is not the purpose of this article to exploit any particular kind of equipment; therefore, references will be made in general. There are on the market a number of different trenchers of somewhat similar suitability for gas distribution work. A machine weighing from five to seven tons and cutting a trench 18 inches to 20 inches in width, can be purchased for around $5,000. The average working life of a machine of this type is estimated at 40 miles of trench. Records approximating 1,500 feet of trench in a city street in an eight hour day have been made. Records show that the cost of operating a machine of this type, covering ten miles of trench in city streets, was .0376 per lineal foot, not including capital charges. This main was installed in various parts of the city, covering a four

Opening Paved Streets in the 20th Century—Hard Work Made Easy

months period, and therefore included moving from one job to another, which is typical of the work to be performed by the average company. If we figure depreciation, or amortization of the investment over forty miles of trench, this cost would be approximately .025 per foot. If this machine were operated at a rate of ten miles per year, the life of the machine would be four years, and interest on the investment and taxes would approximate .01 per foot, making a total cost for trenching of .0726 per lineal foot.

Does Work of Thirty Laborers

This machine will do the work of thirty laborers, but since main laying in most cities is confined to summer months, the displacement of labor is that of transients, which does not affect the regular employee. It is an aid to the distribution department in keeping a more nearly uniform payroll throughout the year, which is desirable from the standpoint of the employees as well as the company.

Mechanical Equipment for Clearing Stopped Gas Pipes. One Man Does Double the Work and Does A Better Job

Another advantage is the speeding up of the work, which has a good effect upon public relations. The tearing up of streets is never pleasing to the residents, particularly if the inconvenience and unsightliness is unduly prolonged. It is impressive to our customers when we proceed with a job, using every modern mechanical equipment and the speed which enables us to excavate, lay the pipe and backfill several blocks of a street between the time they leave for their business and the time they return home in the evening.

Mechanical Backfillers

There are numerous kinds of mechanical backfillers employed. The type of backfiller depends greatly upon the requirements of the job. If the backfill must be tamped, a mechanical tamper operated by a portable air compressor will keep several shovelers busy; whereas, in the old days one shoveler had an easy time supplying two hand tampers. If flushing the backfill is permissible, a home-made backfiller, using a small tractor, with winch and scraper, will prove very efficient and economical. With this type of backfiller two men can keep pace with the trencher. In a certain city last year a gang of six men using a small trencher and backfiller, as described, installed eight miles of 8-inch, 6-inch, 4-inch and 2-inch gas mains in two months' time, without having more than one block of trench open at any one time, showing that the work proceeded continuously and uniformly at all times, and at the speed made by the trencher.

Another useful piece of mechanical equipment in distribution work is the portable air compressor. These may be of large size, mounted on a trailer, or small enough to be mounted on a one ton truck. The trailer size (7 x 6) is adaptable to large construction jobs, while the small unit (5 x 5), is adaptable for use on smaller jobs, such as service installations and emergency work. The air tools driven by the compressor are paving breaker, backfill tampers, caulkers and wire brushes. A wide variety of work can be done, such as cutting asphalt and concrete pavements, hard surfaced streets and hard frozen ground, cutting holes through concrete walls and floors, backfill tamping, caulking lead in cast iron pipe joints and wire brushing pipe. Air from the compressor can also be used for testing mains and cleaning out main and service pipes.

Savings Effected With Compressor Unit

In one medium sized gas company the savings effected by the use of a portable compressor unit, costing approximately $4,000, in one year were more than twice the investment cost of the equipment. In addition to the direct savings accomplished, there are many valuable features accompanying the use of this equipment. The cost of cutting frozen ground is reduced to the extent that maintenance work can be economically scheduled for the winter season, when construction work is at a minimum, thereby decreasing labor turnover. The use of air tools speeds up emergency work, thereby improving service to customers affected.

Owing to the variety and requirement of use, accurate data on air tamping is not available. The tamper strikes a rapid blow of constant magnitude, regardless of the operator; whereas, where tamping is done by manual labor a slow blow is struck, depending in magnitude to the degree of fatigue of the laborer. Caulking hammers are found to operate effectively in a bell hole much smaller than is required for hand caulking, and a joint can be caulked in about one-sixth of the time required if done by hand.

The following actual data gives a general idea of savings that can be effected in the use of air tools used in cutting pavement and frozen ground.

Compressor Using Two Paving Breakers

Job No.	Surface	Soil	Total sq. ft.	Total hours	Sq. ft. per hr.	Cost per sq. ft.
1	Slag	Loam	290	15	19.3	.1037
2	Gravel	Clay	114	3	38.0	.0526
3	Asphalt-Concrete	Clay	12	1 1/3	9.0	.2220
	Average					.1261

Manual Labor

Job No.	Surface	Soil	Total sq. ft.	Total hours	Sq. ft. per hr.	Cost per sq. ft.
4	Dirt	Clay	60	13	4.61	.0867
5	Gravel	Clay	80	64	1.25	.3200
6	Asphalt-Concrete	Clay	10	12	0.83	.4800
	Average					.2956

Note: In all jobs used in this comparison the depth of frost was 2 feet 6 inches.

Where air tools are used the effect upon public relations has been highly beneficial. Where leaks, stopped services, and stopped mains are experienced, the customers are greatly impressed by the speed and efficiency made possible. This has been known to result in numerous compliments upon the service given under these conditions.

Small Compressors for Complaint Work

In addition to portable air compressors used for street work, small compressors mounted on light

Pumping Drips in the 20th Century. One Man Takes Care of 500 Miles of Mains

trucks are used advantageously for complaint work, involving the cleaning of stopped services and house-piping, taking the place of the old hand pump with which most gas men became familiar during the days of their apprenticeship. These trucks are equipped with a small compressor, air receiver and a reel containing a 100-foot length of armored hose. Over a long period of time this equipment used by one large company has shown a saving of fifty per cent over the cost of hand pumping. Contrary to quite prevalent fear of a few years ago in the use of such equipment, no trouble has been experienced in bursted meters on adjoining premises or dilution of gas in mains, due in a great measure to the careful selection and training of operators.

Another use for compressed air and air tools is found in the painting of gas holders, where air brushes for cleaning and painting are economical and efficient. It has been found that one man with air tools can do the work of four men where manual labor is employed, and do better work, with a saving in paint.

Welding and Cutting Torches

A number of other kinds of mechanical equipment can be used advantageously in distribution work, including pipe pushers, pipe finders and welding and cutting torches. A multiplicity of uses is found for the welding and cutting torches, including the making of fittings, both for cast iron and steel pipe, making drip pots and melting lead from cast iron main to be taken up.

Since the discovery of bronze welding cast iron, the purchase of expensive specials for main work can be materially reduced, as branches can be welded into the pipe, which will be as strong as the pipe itself. It will be found that this welding can be done on sand cast pipe or on centrifugal cast pipe made in steel moulds.

Remote Pressure Recording

The transmission of pressure record from remote points in the distribution system to the stations may be classified as mechanical equipment, which has served a very useful purpose in gas distribution. By the means of this equipment the element of chance in pressure conditions can be eliminated, and adequate and proper pressures maintained at all times of the day or night at the points of control.

It does not follow that all mechanical equipment, or labor conserving machinery, can be applied profitably to work being done, nor that its use would have been profitable in former years, even if available at that time. Frequently some equipment is condemned because it will not do the work expected of it in every instance. There are many jobs where local conditions prevent the advantageous or profitable use of a trencher or a pipe pusher, but if there are sufficient jobs to warrant the purchase and use of mechanical equipment, it will be found to be highly profitable and should be used. Each case must be considered on its merits.

A fundamental principle of the gas business, as of any other business, is economy and increased production. Anything that can be done to decrease costs will result in increased use of our product, gas service. The use of mechanical equipment is not a menace to labor, as was thought in 1867 when Hargreaves perfected the spinning jenny, which did the work of eight men and resulted in a mob of spinners driving him out of his home and wrecking his equipment, because they thought it would throw them out of work. They were too short sighted to see that the use of these machines would give them employment at higher wages for skilled labor, which always accompanies increased production.

A few years ago we saw in the increasing use of the automobile the extinction of the horse, and yet today, with 22,700,000 automobiles in use in the United States, there are 15,800,000 horses, which are of a superior average class and command a higher price than before the automobile came into general use.

A CONTRAST IN OIL AND NATURAL GAS PRODUCTION

By Paul D. V. Manning

THE three photographs shown here illustrate three different sources of natural gas in California. This is a by-product in the production of petroleum and has been and still is wasted in the United States in large quantities. In 1926 California produced over 220,000,000 thousand cubic feet of natural gas, valued at $17,600,000. A large part of the gas produced is treated to remove its natural gasoline content. A small amount of the treated gas is used for power and fuel in the oil fields and the remainder is transmitted to cities for domestic and industrial use. Almost none of it is wasted in California, excepting at times of peak production in new fields. This is a temporary condition only and as production becomes settled new pipe lines are installed and carry the gas to centres of population and industry.

The Ventura Avenue Field, one of California's newest and richest oil and gas-producing fields, is in a fertile valley, the wells being in the midst of lemon groves, "a land of plenty," near the sea. Gas has been known here since 1903, the small production first obtained coming from shallow wells. The first deep well, about 2,200 feet, was drilled in 1915, a light oil being obtained.

Wells Over a Mile Deep

Heavy oil in another zone was found in 1918, but difficulties in drilling held back the real development of the field until 1924. Wells now operating in the heavy oil production are over 6,000 feet deep and deeper ones are now planned. The producing sands are more than 1,800 feet in thickness. Most of the production is in the hands of three of the large oil companies. In March there were 75 producing wells with 26 being drilled.

The Midway Gas Company handles the gas from

Ventura Avenue Oil Field
Photo, Courtesy "Gas News"

this field through a 53-mile welded 12-inch pipe line. This carries the gas from the compressor station to the main line between Taft and Los Angeles. Construction difficulties encountered in the building of this and the connecting lines were many, for the country traversed is mountainous and interspersed with deserts.

Contrast the view of the Ventura Avenue field with the picture of the Elk Hills field, an oil field in the desert hills, and the Midway field in desert hills and plains. The land here is fertile but needs water before it can be used for agriculture. This part of the country is subject to climatic extremes.

The photographs illustrate some of the difficulties which are encountered in the conservation and

use of natural gas. The Midway field is about 115 miles from Los Angeles, where most of the gas is

The California Midway Oil Field
Spence Airplane Photos

used. Transmission is effected by one pumping station at the beginning of the line. The gas enters at 400 pounds pressure and drops to 20 pounds at the destination. This results in an enormous increase in volume among other factors which add to the difficulties of the problem.

Notwithstanding the popular conception of California, heat is required at times in the dwellings of the inhabitants. Most of this is supplied by gas. The domestic uses have priority over the industrial needs and both of these demands are subject to wide and sudden fluctuations. This adds further to the difficulties of transmission when the sources are so far away. To obviate troubles, a dispatcher is constantly in touch with all parts of the system and the lines are under the watchful eyes of patrols.

There are many and very productive oil fields in

The Elk Hills Oil Field in California
Spence Airplane Photos

the southern part of California and the gas from these fields is also used in the metropolitan area. The Midway Gas Company handled in 1926 a total of 63,344,792,000 cubic feet of gas, and in December alone 4,971,580,000 cubic feet.

USING NATURAL GAS MIXED WITH MANUFACTURED GAS

By G. V. Postles

SOME interesting experiments were recently made at the U. G. I. Contracting Company's Physical Laboratory at Point Breeze to determine the feasibility of mixing natural gas with manufactured gas intended for distribution in place of 100 per cent manufactured gas. The object was to make a 530 B.t.u. gas that could be used in place of a 530 B.t.u. manufactured gas without adjusting appliances. Manufactured gas had a specific gravity of about 0.7 and consisted of about 85 per cent water gas and 15 per cent coal gas.

Details of the test are available in Appliance Laboratory report No. 3397 "A" and "B", which bring out some interesting phenomena.

In the first place, some difficulty was experienced in determining the true specific gravity of the natural gas on the usual effusion apparatus, as CH_4 is one of the few gases that gives an apparent specific gravity differing from its true gravity as determined by an Edwards balance or a Ranarex machine. The reasons for this are given at length in Bureau of Standards Scientific Paper No. 359—"The Efflux of Gases Through Small Orifices." As an illustration, the gravity of a sample of natural gas as determined by the Edwards balance was 0.582. This same gas gave 0.475 on the effusion apparatus. As practically all gas is passed through an orifice before it is used, the effusion apparatus was considered to most nearly approach actual operating conditions and, therefore, gravities as determined in this manner were used.

A peculiar flame color was noticed in the gas mixtures that contained natural gas, and no satisfactory explanation of how it got there has been made, although it probably was caused by iron carbonyl. The ordinary consumer would not detect this difference in color, but to an experienced eye it looked an orange color but nothing like a flame that is on the verge of yellow tipping. It would not deposit carbon on a piece of cold porcelain on which the flame impinged.

Any per cent of natural gas makes a longer flame and increases the consumption when no change is made in the burner adjustment. This is due and proportional to the change in gravity, natural gas being lighter than water gas. This lengthening of the flame reached a point where appliances would have to be readjusted or else complaints would result when the per cent of natural gas in the mixture reached about 15 per cent.—U. G. I. Circle.

Refractories: Their Properties and Adaptabilities

By Louis N. Rancke

Superintendent of East Station, Washington Gas Light Company, Washington, D. C.

L. N. Rancke

REFRACTORIES may be divided into several classifications, such class designations being based on the ability of the materials to withstand the different reactions met with in the various types of furnaces or in some particular part of such furnaces.

Accordingly, we have Acid, Semi-Basic, Basic and Neutral refractories, which are defined as follows:

Acid refractories are adapted to withstand such reactions as are developed by open firing, with the normal amount of excess air, wherein the fuel is coal or coke supplemented possibly by some steam.

Types of such furnaces where acid refractories are used are, for example:

Gas benches,
Coke ovens,
Water-gas generators,
Gas producers,
Boilers.

It is felt that this article will hold more than passing interest for the reader, due to the fact that the author has been a manufacturer of refractories for gas works as well as other industries for many years. In addition he has been a user of such materials and accordingly is well qualified to handle the subject from all angles.—Ed.

Refractories of the acid class are mainly silicious in character, such as ganister and soft silica. In addition, this class also includes some kaolins and plastic fire clays, and quartzite. These latter are clays chemically constituted to contain approximately 80 per cent silica (SiO^2) and 20 per cent alumina (Al^2O^3). In the acid class are also porphyline and some talcs.

Semi-Basic Refractories

Semi-basic refractories are used to withstand reactions wherein the normal excess air for combustion is reduced, as in the case of the use of oil for fuel, and also where the closed fire tends to reducing action.

The composition of semi-basic refractories is from 30 to 42 per cent alumina and the balance silica. Incidentally, as the alumina content increases the heat resisting quality of the brick is raised. The softening point of the refractory is therefore protected sufficiently to have a safe margin for a moderate reducing action in combination with some acid reactions.

Semi-basic materials represent that class of refractories with which the most of us are familiar under the name "fire brick." In combination with some acid materials this class is generally adapted for most of the work of manufacturing gas; however, semi-basic refractories may be used in some parts of all types of furnaces enumerated under acid materials. It might be mentioned that they find a more extensive use in the manufacture of iron and steel and in oil furnace work.

Semi-basic refractories are produced from flint, block and so-called soft clays. Very few of the soft clays, however, of this group possess the plasticity, strength or wearing qualities of the more plastic kaolins, which are lower in alumina content. To offset the lack of these qualities and to eliminate some of the excess shrinkage of these clays, refractories made therefrom should contain a percentage of ground calcined material—of the same mixture—equal to the hydroscopic moisture content. The refractories should be fine ground to assist their normal lack of ability to take up and give off heat quickly. This latter feature, together with the addition of the calcined material mentioned, will increase the strength of the brick structure.

Basic and Neutral Refractories

Basic refractories are adapted to withstand highly reducing action accompanied by the formation of heavy slags in the presence of intense heat; for example, where large volumes of iron and steel are melted in the presence of fluxes, in the reduction of zinc through smelting and in some phases of glass manufacture.

The outstanding material used for basic refractories is magnesite (magnesium oxide), artificially bonded. This is an inert material.

Bauxite, containing 60 per cent alumina and bonded with a highly plastic clay, is a very effective agent under the heading of basic refractories. This, however, should not be used without calcining and milling, since the moisture content is sometimes as high as 55 per cent and the shrinkage excessive.

While this class of refractories holds only academic interest for us, it might be mentioned that bauxite and bauxitic kaolins form the material from which a large part of the aluminum ware for kitchen utensils is made.

Neutral refractories present resistance, under very high heats, to a combination of acid and basic reactions and resist the virulent action of the slags

formed in the reduction of metals in large volumes. This class also does not enter into our consideration except for general information.

Chrome is the outstanding material used in the manufacture of neutral refractories. It is an inert material artificially bonded or tamped into place.

Clays of Maryland and New Jersey

At this juncture it might be in order to digress to give brief consideration to a class of fire clays that have not generally received proper recognition for their worth. Such clays are chemically quartzitic and include the residual clays of Maryland, the miocene kaolins of New Jersey and the highly plastic Arundel and Patapsco formations of the East.

The residual clays of Maryland lay in close proximity to the granite formations and are composed of undecomposed kaolinite and gneiss rock. This material shows an analysis of about 80 per cent silica and 20 per cent alumina. It also contains a negligible quantity of lime, magnesia, 0.27 per cent ferric iron and 0.18 per cent TiO^2. It has a strong porous body which, when burned, retains its structure with open lungs so that there are plenty of apertures through which the heat may penetrate.

The initial shrinkage of these clays is three-eighth inch per foot when burned to 2,350 degrees Fahr. and the expansion at 3,100 degrees Fahr. is one one-hundredth of an inch per foot.

This is an ideal material for furnaces wherein the reactions are acid. It stands sudden and extreme changes in temperature and is excellent for use in furnaces intermittently operated. Bricks made of this clay show a wearing surface throughout the brick body and do not break out in large pieces, as do those of flint and soft clays. Their greater strength overcomes some of the advantages claimed for the higher heat-standing brick mentioned under the semi-basic heading. (Note: Show less drop in heat standing under load test.)

The fire brick made from the miocene kaolins bonded with Arundel and Patapsco clays, if made with 22 per cent ground calcined materials, possess much the same qualities. They have, however, more color, due to a higher iron content, but may possibly develop a slightly stronger body through having a large percentage of titanic oxide (TiO^2) and also due to the better grade of plastic clays with which they are bonded. This brick possesses more movement than the residual, since their original clay shrinkage is from three-quarter inch to one and a half inches per foot when burned in kilns at the same temperature.

Functions of Fire Brick

The functions of a fire brick are as follows:

1. To absorb, store and radiate heat.
2. To present resistance to powerful chemical reactions in the presence of heat.
3. To withstand sudden and extreme changes in temperature wherein the heat may penetrate the full body of the brick, as in checker work, or may only penetrate part of the lining.
4. To withstand crushing and shearing strain, which latter causes a large part of fire brick failures.
5. To withstand abrasion and cutting action of tools.
6. To withstand cutting action of impinging flame through short-circuiting of the flow of gases or the blast.
7. To resist the reducing action of gases and carbon pitting.
8. To present resistance to fuels and to the fluxes and clinker therefrom.
9. To withstand the force of the descending charge of fuel and its improper distribution.
10. To withstand variation in make of unit together with an ever-varying class of fuels and the attendant severe fire conditions therefrom, and further to resist disintegration from moisture combined with heat.

The selection of refractories for gas work will of course be governed by the size and type of plant operated and will be influenced by whether the operation is continuous or intermittent. If the plant can be operated uniformly, and coal gas benches or ovens are used, silica would appear to be the best selection above the furnace, while below the furnace, depending on the class of fuel used, a selection from some of the other acid materials or the better grade of semi-basic refractories should be favored.

Silica takes up and gives off heat more rapidly, and carbon does not form on it so easily. Silica is artificially bonded with lime and will expand when furnace temperature is brought up to working heat. This movement may or may not settle back to the same point when cooling off takes place; therefore, for intermittent operation, the selection is best made from the clay refractories.

What Should We Spend for Refractories?

The expense to which one should go in the purchase of refractories for water-gas linings is dictated by the time one runs the checkers; this latter condition being governed by the kind and grade of fuels, blast pressure and amount of flue dust blown over, as well as the grade of oil and the heating value of the gas made.

With the present method of stripping gas oils, wherein a certain percentage of C^2H^n series are loaded back to show an apparent olefine content and low gravity, we have to combat the breaking down of this series and either face the situation of lowering the heats and mucking the circulating wells or, with normal carburetter heat, that of breaking down this series to CO and H^2, with consequent loss in oil efficiency, and, through the moisture developed by reaction, a rapid disintegration of the checker brick in the carburetter.

It will be found that this objectionable feature can be corrected by the use of 2¾x2¾x9 inch brick spaced at 2¾ inches, using the brick in both carburetter and superheater. This increases the efficiency of checkering by about 25 per cent and gives a far more effective battering of the gases through the checkers.

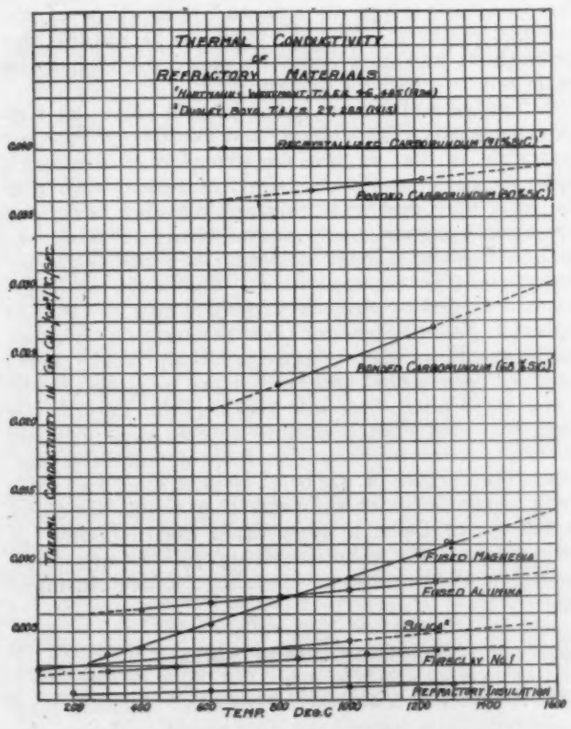
Attention might be called here to the fact that the specific heat of fire brick, generally used for checkering, is 0.22, while the average specific heat of gases through the set is 0.22 to 0.24.

It is the writer's opinion that the flue dust and the breeze from mixtures of coke and gas coal do more to shorten the checkering periods than the formation of petroleum coke. Flue dust (silicate of iron) in the presence of some carbon has a decided reducing action on the linings. Gas coal mixtures have a bad effect on the linings through the medium of blow holes and channeling, when used in sets of large diameter.

For the generator linings one should make a selection of materials that will stand the required heat and at the same time present a wearing surface through the body of the brick; such materials being acid, other than silica.

Carburetter and Superheater Linings

For carburetter and superheater linings a choice should be made from semi-basic materials, and for the drawn-in tile a brick should be used which will have heat resisting qualities rather than wearing characteristics. All linings should be fine grind with nothing over one-eighth to one-tenth inch in size.



Thermal Conductivity of Refractory Materials

They should contain as much ground calcined material as possible and the manufacturer of refractories should select his clay from the breast of the vein and not use top or bottom clays. The bond clays should be plastic.

In the writer's opinion a brick for this purpose need not have any flint, provided the soft clay is high enough in alumina and plastic. If additional heat resistance must be secured the flint clay used should be milled. Flint clay, as generally used, has more of an igneous structure and the heat penetration is around and not through the body, as flint lays in the soft or plastic clay. It therefore does not add to the cohesiveness of the brick body.

For checker brick, a composition of highly plastic soft clay, with as high an alumina content as possible and with all material ground as above, should be used. Such brick should contain about 22 per cent of calcined material of the same grind. A brick made under the dry press system with modified pressure (1,200 pounds on a two-nine inch brick mold equivalent pressure) will answer every reasonable requirement, and, incidentally, should be lower in price.

Fire Brick for Boilers

In the case of boilers the selection will depend on the size and type, whether operated at normal rating or overload, whether hand or automatically stoked and oil or coal fired. The stoker arch generally presents the most vexing problem due to the fact that the greater percentage of them are designed with too little rise for the span of the arch. However, when flat arches supported on T-bars are used good results are obtained by using compositions of high refractory value; tending toward flint clays with strong plastic bond clay and a percentage of calcined materials.

For side walls a good strong, well-burned brick, with as little movement as possible, should be used.

For oil or tar fired boilers a high-grade flint clay brick, high in alumina content, with proper bond, fine grind and calcined material will serve best.

Failure Not Chargeable to Materials

There are a number of causes for the failure of refractories which cannot be charged against the materials composing the finished bricks. Among the most important of these are the following:

1. Poor bricklaying, such as leaving the end of a brick projecting with the subsequent breaking off and traveling of the fracture through the lining.

2. Using improper clays or clays improperly prepared. Fire brick should be laid in clays of the same materials and should contain one-third calcined clay, the whole being ground through a No. 14 screen. The clay should be soaked or tempered for 48 hours in order to secure the best results.

3. Making poor joints. Joints should be thin, but should be sufficient to take up a reasonable amount of movement in the furnace.

4. Cutting of bricks instead of using special shapes. This leaves a rough surface for the fire and heat reactions to get a better hold on. Very few bricks cut clean.

5. Too rapid drying out of furnaces when putting on and the reverse, too rapid cooling when taking off. This is the most common cause of refractory failures generally blamed on the material. When putting

on furnaces the stack should be watched carefully until the bluish water vapor disappears. This slow firing will deposit a portion of carbon on the linings which will help protect them until furnace heat is brought up to the working temperature. The full capacity of the furnace should not be obtained until it has been in use for some time.

6. Improper and faulty distribution of fuel, formation of hot pockets and blowholes through careless firing, inexperience or inattention.

Substance	Coefficient of Expansion × 10^6 (25°-800° C.)
Alumina, refractory made of	7.9
Magnesia, refractory made of	13.4
Silica	0.5
Thoria	9.3
Zirconia, parallel to long axis of crystal	8.1
Zirconia, perpendicular to long axis of crystal	7.3
Zirconia, refractory made of	6.6

Average Coefficient of Expansion of Some Oxides

7. Careless clinkering or cleaning of fires and the use of oyster shells to remove stubborn clinker. These expedients are, however, sometimes advisable.

8. Freezing the linings against shell or outside structure of furnace. Insulation should be provided in back of linings to conserve heat and also to take care of movement in the furnace. The furnace, however, should not be over-insulated.

Useful Hints on Refractories

Some useful hints and information on the subject of refractories which might serve a practical turn are listed below:

1. A sprung arch should never be designed with less than one and a half inch rise per foot of span.

2. The most effective cross section of flue for heat absorption, convection and radiation is 1 x 1. The area should be sufficient to prevent undue restriction to the flow of gases, but compact enough to secure advantage of surface combustion.

3. A system of laying up fire brick that permits of repairing a section of a boiler furnace without disturbing all of the same is as follows:

First course—Stretchers backed by headers (starting at grates).

Second Course—Headers.

Third to Seventh Course, inclusive—Stretchers backed by stretchers.

Eighth Course—Stretchers backed by headers.

Ninth Course—Headers.

Tenth Course—Stretchers backed by headers.

Eleventh Course—Headers; above that, stretchers with top three or four courses stepped off to meet the shell just above the top row of rivets.

Detail up to eleventh course to be repeated to height corresponding to the particular boiler.

4. Fire brick linings should be one and a half inches thick for each foot of furnace area; for example, if the furnace is nine feet wide the lining should be thirteen and a half inches thick. This excludes insulation and backing-up brick or casting.

5. Carbon does not cling to materials with high silica content so easily as to other refractories. On the other hand, clinker and fluxes attack silica content more easily than they do alumina content of refractories.

Removal of Surface Carbon

6. Surface carbon may be removed from checker bricks, if they are not too much contaminated with flue dust, by way of maintaining the working temperatures while the set is down and admitting air or dry steam. This is the same as scurfing retorts or ovens. Carbon content, however, cannot be removed from the body of the fire brick without destroying the bond of the brick except through maintaining a gradually and progressively raised heat from 1,200 to 1,600 degrees Fahr. over a period of 48 hours. This will provide for the removal of carbon content not to exceed 2 per cent.

7. Carbon dust and flue dust have very high insulating value and when combined with or in the fire brick, kill its resilience.

8. Special shape refractory blocks will give best results if restricted in size to the equivalent of five standard nine-inch bricks of the material of which they are made. This would be 35 pounds if they were of clay. This rule will give the best results in handling and burning and on account of not eliminating too many joints will take care of some movement in the furnace. When made larger especial care must be given to size and proportion of the calcined material, the blocks should be natural dry throughout and care must be exercised in burning so as not to give rise to coring.

9. The advantages of good plastic clays, as well as others which burn open, and the use of calcined materials is that in this construction of fire brick body the division of the line of fracture is such that the heat may penetrate through the clay body, and not around certain parts of the structure lying imbedded therein. These materials are also stronger and present better resistance. The lungs or interstices provided by this class of clays and by calcined material permit better heat penetration without spalling. Flint clays (more so than block clays) have an igneous structure, but, as a general rule, stand more heat than soft clays. Flint lays in the bond clay and does not cling to the structure and the heat penetrates around and not through the flint. When the surface of the brick is destroyed and tools come in contact with the brick they break out these particles and cause a more rapid disintegration of the body. On the other hand, the plaster clay brick described above presents wearing surface throughout.

Increasing Life of Furnace

10. A scheme indulged in by some furnace men to increase the life of the furnace is to bring the furnace to working heat gradually and then advance the temperature 200 to 300 degrees Fahr. for three hours, then drop to working heat. This forms a glaze over refractories and retards spalling.

11. To arrive at the temperature a fire brick will stand under working temperatures, if the chemical

reactions be right, refractories are generally tested in a furnace with a load of 25 to 35 pounds. This usually reduces the claimed temperature by about 200 degrees Fahr.

12. In addition to the temperature arrived at by the load test one is likely at times to have a change of conditions wherein the firing changes from open to closed through improper air supply. This gives rise to a highly reducing action and unless one is using materials especially adapted to this condition, the best procedure is to allow 400 degrees Fahr. in the heat standing of the refractories when same are being selected.

13. Fire brick and other refractories should not be stored in the open. Good fire brick will absorb 12 to 22 per cent of water which if frozen will destroy the bond of the brick. One thousand 9-inch brick closely stacked will require 56 cubic feet; loosely stacked, 72 cubic feet. A cubic foot of solid fire brick masonry work requires seventeen 9-inch brick, or 10 per cent more for arches, keys and wedge.

14. Silica will absorb and give off heat twice as quickly as alumina. Silica, however, will expand at least one-quarter inch per foot at from 2,500 to 3,000 degrees Fahr.

15. The process of manufacture, with the same clays, has an important bearing on the ability of a brick to take up and give off heat, as is shown by the following test:

Hand made, coarse grind	88
Machine made and repressed	100—Unit of test
Dry press, fine grind	110

Weathering Removes Insoluble Salts

16. Weathering of clays through one freezing and thawing, or through six months or longer of normal weather, will remove certain insoluble salts (fluxes) and thereby increase the heat resistance of the clay by about 150 to 200 degrees Fahrenheit. Further, the strength and plasticity will be increased.

17. Bricks may be tested for strength of structure or for spalling by heating in the furnace to 1,500-2,000 degrees Fahr., then dropping into cold water, drying and repeating the process so long as the brick will hold together. This, however, should not be a guide for rating other qualities of the brick.

18. A useful purpose for the specially prepared "High Temperature Cements" may be found in the repairing or in the building up of vertical baffles in boilers. When highly plastic and mixed with 40 per cent finely ground calcined clay these cements make an excellent baffle when applied with a plastic clay gun under pressure. This gun reaches the inaccessible places in a handy manner. These mixtures and the method of applying them also offers a solution for temporary patching of furnaces under fire.

19. To increase the life of linings in Water Gas sets and other furnaces a thin coating of fire clay and ground calcined clay should be applied with a plastic clay gun after completing repairs. This will present a good even surface with crevices filled in.

20. There are a few other refractories that possess quite a little merit but are not so general in their use as brick. Among these are Dolomite, Zirconite, and the fused compounds of Silicon Carbide, Siloxicon and Carborundum. The latter stand great heat under some reactions, but at 1,470 degrees C. or 2,678 degrees F., with acid conditions prevailing in the furnace, the silica content starts to oxidize, weakening the structure and refractoriness. This will no doubt be of interest to those who have tried this for generator linings.

21. No two furnaces, even of the same apparent design, will operate alike, and each must be studied and treated differently if you would save the life of your refractories.

Use of Special Cements

The use of special High Temperature Cements in our industry, in the writer's judgment, is limited to the last two purposes mentioned above. The additional cost over clay and ground calcined material is not warranted and if the proper cause of the trouble is located it is not believed that the remedy would consist in the use of these materials.

The specially prepared and expensive refractories, sometimes recommended for correcting furnace conditions, are also restricted in their use, in our industry, to experimental work. They might also find a field where one has a furnace of special design or where there is a peculiar condition due to faulty design. The real remedy would seem to be the detection and rectifying any such faulty conditions. These special materials at times give greater life but scarcely sufficient to warrant the increased cost. Further, while they apparently correct some visible evil and, perhaps, fulfill the claims advanced, the correction of the difficulty might be made to the detriment of some other feature of operation.

There is an apparent inequity in some furnace work wherein materials of one class seem to stand well in comparison with materials of another. A notable example of this is silica when used under some highly semi-basic conditions. This is due to the fact that the softening point of the refractory is so much higher than the furnace temperature under the particular working conditions that the structure is not weakened sufficiently to lay it open to contrary chemical action. However, too much dependence should not be placed on this always working out, as is evident from previous notes in this article.

Note—The graph of conductivities on page 38 is taken from a paper "Thermal Insulation of Electric Furnaces" by M. L. Hartmann and O. B. Westmont, read at the meeting of the American Electro-chemical Society, Washington, D. C., October, 1926.

The tabulation of coefficients of expansion on page 38 is taken from a paper "The Thermal Expansion of Some Fused Oxides Used as Refractories" by G. E. Merritt, read at the same meeting.

TRADITION KEPT UP

A tradition of seventy-nine years remained intact recently when a truck carried a small batch of live coals from the old Market Street plant of the Public Service Electric and Gas Company, Newark, N. J., to a new building a short distance away in Harrison. The coals were used to start the first fire in the new plant.

UNIVERSAL USE OF GAS WILL IMPROVE THIS CONDITION

H. C. Murphy, of Reed Air Filters, in an article published March 24, 1926, in the New York Commercial, stated that Dr. Bundensen, Health Commissioner of Chicago, declared that today 60 per cent more people are dying of disease caused by contaminated air than of all other diseases. Data compiled by Mr. H. C. Murphy, using the Hill Dust Counter, shows the actual amount of dirt present in the air of various cities as follows:

City	Dust particles per cu. ft.
St. Louis	17,600
Cincinnati	16,770
Pittsburgh	16,100
Detroit	15,300
Chicago	14,300
Indianapolis	14,060
Cleveland	13,840
Louisville	13,340
Buffalo	12,350
Baltimore	11,980
Milwaukee	11,460
Toledo	10,700
Columbus	10,160
Philadelphia	9,880
New York	9,760
Kansas City	9,700
Atlanta	9,460
Minneapolis	8,470
Des Moines	8,370
Washington	7,800
Denver	6,740
San Francisco	6,580
Boston	5,360

Transferring these figures into every day measurements, the average resident of St. Louis is inhaling in excess of a tablespoonful of soot and dirt every twenty-four hours. The New York and Philadelphian, however, is taking only half as much, probably in excess of a teaspoonful per day.—Publicity Dept., Sixth National Exposition of Power and Mechanical Engineering, New York.

GAS ENGINEERS WILL SHOW COAL IS A RAW MATERIAL, NOT FUEL

Leading gas engineers are setting about to disprove what has long been considered an almost axiomatic theory, that coal is fuel, according to a recent report of the American Gas Association. The contention is that coal, which must for thousands of years remain the chief energy resource of the world, is an essential raw material from the social, scientific and industrial viewpoints.

These engineers feel that but a relatively few years will elapse before their ideas are proved. Basing their conclusions on the fact that from 1815 to 1914 the white population of the world increased three-fold, while the production of mineral fuels, coal, oil and natural gas, increased seventy-five times, they foresee a rapid culmination of the theory that the burning of raw coal defeats conservation, and at the same time is uneconomic and injurious to health.

"Giant gas plants situated at strategic points throughout the country where coal is easily available, and a network of gas mains distributing clean gas at high pressures over long distances is an accomplishment of the future," says their report. "Already sufficient knowledge is at hand to prove the practicability of this endeavor. Two gas mains from Ohio to West Virginia, 300 miles long, distribute natural gas at relatively high pressure.

"Another natural gas line, now underway, will be 450 miles long, and will pass gas at 450 pounds pressure."

The situation in the Ruhr district in Germany is especially bright, these engineers feel. Throughout the great iron and coal district of the Ruhr there are enormous coke-oven systems, resulting in the production of huge quantities of coke-oven gas. The proposed method of utilizing this gas, which is a by-product of the coke ovens, is to construct a main 450 miles long to transmit gas at 450 pounds pressure. The gas would be piped to the local gas companies serving towns and cities far away.

"While the German situation is comparable to that in certain sections of America, a furtherance of the idea will prove to be much more practical," it is claimed. "The erection of giant gas manufacturing plants, at the mine mouth, or at strategic points, will take the place of the German coke ovens. The coke that is made will then be utilized in the making of additional gas, by a process that has been proved economically sound for many years, with the result that these plants will be able to pipe large quantities of gas to the surrounding territories.

"There will be absolutely no waste attached to these huge gas plants. The utilization of the coke for additional gas-making will solve the problem of its disposal in sections where there are huge batteries of coke ovens today. The other by-products of gas manufacture can be disposed of easily. These include valuable fertilizers, perfumes, tar, etc."

The gradual exhaustion of the natural gas supply is a stimulus to the development of huge gas plants, the report continues. Already research is underway at the American Gas Association Testing Laboratory to determine the most economic means of mixing manufactured with the natural product.

GAS BY-PRODUCT A FINE FERTILIZER

It is a long jump from a Middle Western manufactured gas plant to Japan, but approximately half a million pounds of ammonium sulphate has been purchased and will be shipped to Japan for use as fertilizer in tea-growing, according to the Laclede Gas Light Co. of St. Louis, Mo.

This fertilizer is a by-product of coal gas manufacture which takes the form of a crystalline white substance.

Pre-Convention Preparedness

A survey of recent literature

By Katharine Maynard

Vail Librarian, Massachusetts Institute of Technology

WHEN a technical journal refers to the annual outlay for conventions, exhibitions, and other association work in one industry as amounting to "millions, literally millions," it is not surprising to find the statement followed by the question, "Does it pay?" And, although the answer given by any progressive industry today would doubtless be an emphatic affirmative, there is ample room for discussion of the further question, "How can it be made to pay better?" Obviously, the increased return to be sought from this large investment must come from one of two directions—better planning of the convention in advance or better execution of the plan after the conference assembles. Since the success of the actual meeting, however, depends to so great a degree upon the advance preparation, it is this aspect of the question which is receiving most consideration at the present time on the part of convention officials.

Old Idea Passe

The old idea of the annual convention as a mere social get-together, self-propelled by its own enthusiasm, has long since given way to a realization of the business value of the conference as a medium for securing definite measurable results. Many associations have nevertheless been slow to apply to the organization of their meetings the same principles of studious forethought and efficient direction which are commonplace features of their business organization. Experimental investigation, for example, with tabulated results of different methods of administration, is almost unknown, and how many conventions have employed so simple a means of encouraging criticism as the familiar suggestion box of present-day industry? Yet until the convention official prepares the way for these meetings with the same attention to detail that is given to the ordinary directors' meeting, carefully checking the actual accomplishment with anticipated results, how can he know whether the return on the individual and group investment is to be considered reasonably satisfactory?

This necessity for linking together the planning, operation, and following-through of a convention has resulted in a steady development of recognized technique, and has called forth the new profession of "Convention Manager" and a new service known as the "Convention Bureau." Although many associations still prefer to run their meetings by committees of their own group, the pressing problems that confront their representatives bring prompt recognition of the need for concentrated application of well-tried methods of organization and management. This has been reflected of late in frequent contributions to the technical press, and two books have recently been published[1] which summarize the experience of a large number of associations in developing methods that have proved effective under diverse conditions.

Cooperating With Local Bodies

In How to Plan a Convention, Mr. P. G. B. Morriss, of the Drake Hotel, Chicago, emphasizes the social and personal side of the undertaking with a suggestive and entertaining discussion of the necessity for unified planning and control. At the same time he urges that fullest use be made of the ready co-operation of the local chamber of commerce and the hotel management to avoid conflict and duplication of effort. This is sound advice, since many details can be better handled by men on the spot who are familiar with the experience of others in the same situation. It will also promote good feeling and a heartier response to proffered hospitalities on the part of the arriving delegates. As everyone knows, this human and social side of convention activities has a direct bearing upon the success of the meeting, and certainly the industries which are carrying on extensive campaigns for better public relations should make a practical demonstration of friendly co-operation in their convention contacts.

The book includes many reprints of forms that have proved suitable to the special aims of various organizations, with due recognition of the fact that no two conventions are quite alike in purpose or in spirit. Of special interest are the detailed Outlines of Procedure quoted, which, with slight changes, might well serve any group as a basis for preliminary planning.

Mr. Morriss stresses the value of "inspirational literature" both in stimulating attendance and in holding interest during the progress of the meeting. By many searching comments he shows himself an acute observer of the psychology of the convention mobs that have passed before his view. An illuminating final chapter called "The Troubles of Jones" relates how one meeting went wrong, and how it might all have been avoided. Evidently the result of a ripe experience, the book is full of practical suggestions for the administration of a group conference of whatever nature, although the viewpoint assumed is chiefly that of the "booster" type of business convention.

Planning a Year in Advance

Mr. Edward Eyre Hunt's book, on the other hand, discusses Conferences, Committees, Conventions and How to Run Them from the standpoint of a government official who has had to do with more formal gatherings, such as the conferences regularly held at the Department of Commerce.

Naturally, therefore, while no less attention is given to the importance of planning, there is a more detailed discussion of the technique of directing a convention and more consideration of the actual docket or agenda. Mr. Hunt calls it good trade practice to determine the subject or subjects of the meeting a full year in advance, and shows how to project the program beyond the term of the conference by organized follow-up work. Continuous, well-directed propaganda may in this way be put behind a movement over a considerable period, when the results of a single attack, however intensive, might be of little permanent value.

An excellent outline of publicity method is given in detail, with suggestions as to successful cooperation with the press in the preparation of copy, taking into account the idiosyncrasies of various papers and associations. Mr. Hunt is careful to point out, however, that "the attention which the conference will secure depends, in the last analysis, not so much upon the efficiency of the mimeograph machine or mailing clerks as upon the real news value of the events."

Cost of Publicity Headquarters Low

As an effective example he cites the work of the publicity staff of the American Association for the Advancement of Science at its Boston meeting in 1922, when advance copies of hundreds of papers, with photographs and biographical sketches of speakers and officers, were made available as "handouts" to the reporters, while four stenographers were kept busy through the week of the convention stenciling mimeographed reports of the actual meetings. In this case, although a separate room was provided for the press, with four telephone trunk lines and a telegraph line, the total cost of maintaining the publicity headquarters, including clerical work and supplies, was less than two hundred and fifty dollars.

A series of appendices quoting specimen programs, conference calls, motions, minutes, and reports add to the value of Mr. Hunt's treatment of the subject, and the book offers stimulating reading throughout its two hundred pages.

An even more detailed outline of procedure is given by Mr. C. L. Barnum in a Taylor Society bulletin[2] telling How the Division of Simplified Practice Plans Conferences with Organized Trade Bodies. This is probably the most elaborately worked out technique yet devised for the conduct of group meetings. The instructions are specific and detailed as to preliminary preparations, with a Work Calendar for one month, three weeks, one week, one day, and, finally, one hour before the time of the meeting, followed by a check-list of things to be done during the conference and a statement of how it should be brought to a close. Such detailed consideration as to the best means of securing results on the part of a body whose aim is the elimination of waste is the highest endorsement of the conference idea, and also shows how it can be made more effective through the principles of scientific management.

The convention movement is analyzed from still another viewpoint by Mr. Albert E. Haase in a recent contribution to Printer's Ink.[3] The part that chambers of commerce, hotels, and railroads have played in fostering through patronage what he calls the "Convention Industry" is here compared with the present tendency to offer service instead of financial concessions, and "let the associations pay their own way." In line with this policy is the recommendation of the National Chamber of Commerce[4] that sightseeing and entertainment be provided through an organized convention bureau and covered by a registration fee. The fact that this change of attitude has been accompanied by a steady increase in the number and size of conventions bears witness to their proven worth to the American business man.

The very success of the convention plan is, indeed, bringing with it another set of problems resulting from the greatly increased attendance and the diverse aims and interests of necessity prevailing in a group that numbers several thousand. Hence, we find a recent editorial in the Electrical Record[5] discussing how to "make a great convention greater" by actually cutting down its size. In order to provide for "less talk and more action" it is proposed to change the meeting from a free-for-all assembly to a legislative body of official delegates; opportunity for widespread participation in the association's activities being afforded by raising in importance the section meetings of the geographical divisions.

Balancing Social and Technical Features

Another problem to be everywhere considered as conventions grow in size is how to achieve a balance between social and technical features in the organized activities. Without yielding to the idea of the convention as a "great annual circus," every program committee must concede some time to athletics and recreation, and advance planning here, as elsewhere, will serve to prevent disorder and conflict. The aim of the executive in this matter was well stated in this journal a year ago by Mr. M. S. Sloan.[6]

Out of all the discussion two ideas seem to emerge as the chief factors in successful convention management. These are, first, the amount of advance planning; and second, the attention given to little things. The principal features of the program center naturally about the "keynote" topic, which is usually decided by men wise in the councils of the association who thoroughly understand its needs and problems. But the message behind the paper program may easily fail to carry through because of ineffective organization.

As the medium through which much of this detailed administration must be carried on, and as the principal point of contact with the attending delegates, the Registration and Information Booth assumes an importance not always recognized. At this point, above all others, the highest degree of preparedness is indispensable to success.

From a somewhat detailed report upon the organization of one such booth the following summary is quoted from the Library Journal:[7]

Plan for close co-operation with all other committees.

Have all details thoroughly worked out in advance.

Stick to the system adopted.

Make in advance a staff schedule for the week.

Have typewritten instructions for the staff on all matters of routine.

Do as much advance registration and badge work as possible.

Anticipate probable questions by clearly posted signs.

Use the bulletin board for official program announcements.

Keep an authentic revised program on the desk.

Post a map of the hotel.

Post as many as possible of the "Sign Below" announcements.

Assign drawers or shelves to officers and committees.

Write every message—do not trust to verbal communications.

Label all "desk copies" of folders and timetables.

Label everything.

Beyond the skilled organization in ultimate effectiveness, however, is the personal note of welcome and understanding, which can only be assured by having some member of the association always in attendance. To secure the best results the Information Committee must of course have widespread co-operation, and must be promptly informed of all important actions and decisions. In this way it can be made the secretariat through which all officials and committees function. Through its central position and personal contacts it may serve as an outpost to feel the pulse of the convention upon a given matter, and by taking note of the informally expressed reactions of the delegates may gather much useful information for the guidance of future conventions.

[1] How to Plan a Convention. P. G. B. Morriss. Chicago, Drake Publishing Co., 1925. Conferences, Committees, Conventions, and How to Run Them. E. E. Hunt. New York, Harper & Brothers, 1925.

[2] Vol. 9, pp. 203-24, October, 1924.

[3] Vol. 132, pp. 41-2, 89-92, July 9 and 16, 1925.

[4] Conventions Good and Bad. D. A. Skinner. Nation's Business, Vol. 12, pp. 70-72, May, 1924.

[5] Vol. 42, p. 3, July, 1927.

[6] Vol. 125, pp. 1-3, July 3, 1926.

[7] The Conference Information Booth. Katharine Maynard. Vol. 51, pp. 13-16, January 1, 1926. (Reprinted by New Ocean House, Swampscott, Mass.)

In order that any convention might be guaranteed a success it is essential that it be well attended. Further, such attendance must be of a high order; an intelligent one.

This degree of intelligence is in direct proportion to the amount and quality of pre-convention thought indulged in. One should plan ahead as to what thoughts and ideas he expects to get from a convention and what he expects to give.—Ed.

ART IN GAS BANQUET MENUS

The gas lighter is seen at work turning on the gas in a dilapidated street lamp of by-gone days in

the above attractive and artistic cover for the menu of a banquet which was recently held in Lille, France, on the occasion of the fiftieth annual meeting of the gas industry in France. This meeting was attended by many French and foreign gas men and transacted considerable important business. The banquet was given under the auspices of the Compagnie Continentale du Gaz, which is the local gas enterprise at Lille.

Gatherings of technical men in convention are many times supplied with banquet menu cards that are downright stupid and banal from an artistic standpoint.

This is not necessary and should not be the case. As shown in the accompanying illustration, a banquet menu card can reflect a lot of human interest if it is artistically planned.

The gas industry in particular is replete with human interest tradition and it is good publicity to stress this, even on menu cards.

Influence of Oxygen, Nitrogen and Hydrogen in Coke

Some practical applications of the graphical analysis

M. Ruhland, Munich, Germany

Das Gas und Wasserfach, 1927, 664 ff.

In the first article, published under the same title in the August issue of the American Gas Journal, the fundamentals of the graphical method were developed and various curve diagrams were developed and explained. In this article the method of applying these graphs in an actual operating instance are described and their derivation is continued. Due to the great length of this article only those parts of particular importance are given here.—Editor.

THE primary gas is defined to be that gas which does not contain methane and which is produced merely by the reaction between carbon and steam and air. Due to the condition that $a^1 + b^1 + c^1 + d^1 = 100$ and with the use of other equations given in the first article, we obtain the following:

$$a^1 + b^1 + c^1 + 3.7619 \left(a^1 + \frac{c^1 - b^1}{2}\right) = 100$$

or $4.7619\ a^1 + 2.88095\ c^1 - 0.88095\ b^1 = 100$. (14).

Equation 14 is the gasification equation of the primary gas. It shows the internal relationship between the analytical results. The derivation of this equation is simple and is dependent on the reactions that take place between carbon and oxygen to form carbon dioxide and 3.7619 parts of nitrogen, the reaction between carbon and steam resulting in the formation of carbon dioxide and hydrogen, and that between carbon and carbon dioxide resulting in the formation of carbon monoxide. (The reader is referred to the original article for the details of this equation. Trans.)

Graphical Form of Equation

This equation can also be expressed in graphical manner as seen in figure 1. (The original article also contains details on the derivation of the graph.) It is possible to represent the properties of the gas by expressing them in terms of the analytical results. Thus the heat tone of W is equal to the following:

$$W = \frac{100}{a^1 + c^1} (81.35\ a^1 - 24.510\ c^1 - 48.505\ b^1)$$

kilogram calories per kilogram carbon (which may also be expressed in terms of B.t.u. per pound carbon by multiplying the result with the factor 0.012.). The air required for making the gas is then given by the equation: $L = \frac{8.88}{a^1 + c^1} \left(a^1 + \frac{c^1 - b}{2}\right)$, the result being expressed in cubic meters of air at zero degrees C. and 760 millimeters pressure per kilogram of carbon or when multiplied by the factor (1.6) in terms of cubic feet per lb. of carbon.

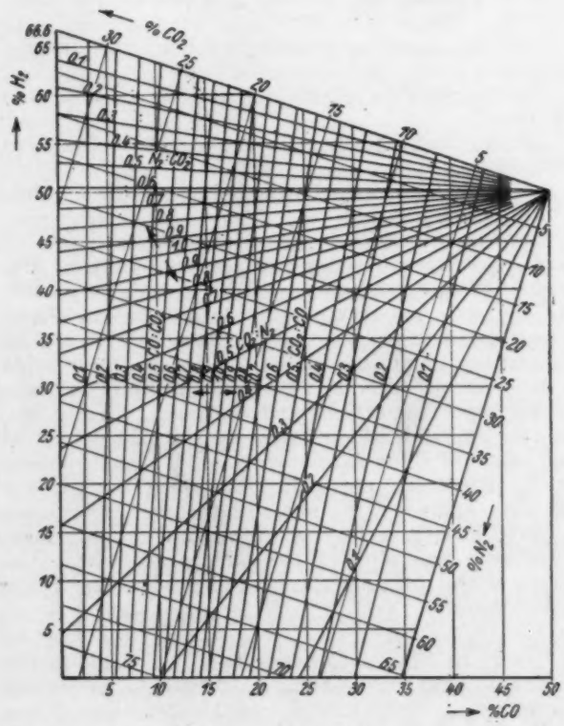


Figure 1

The steam requirements are given by the formula which follows:

$D = \frac{1.501\ b^1}{a^1 + c^1}$, the result being expressed in kilograms of steam per kilogram of carbon or pounds of steam per pound of carbon.

The efficiency of gasification is given by the following equation:

$$E = \left[81.35 - (81.35\ a^1 - 24.510\ c^1 - 48.50\ b^1) \frac{100}{a^1 + b^1}\right] \div 81.35$$

and the heat value of the gas by the equation:

$$Hu = c^1 \times 30.40 + b^1 \times 25.70$$

which expresses the heating value in terms of calories per cubic meter of the gas at zero degrees C. (or 32 degrees F.) and 760 millimeters pressure.

(Multiply by the factor 0.007 to obtain the result in B.t.u. per cubic foot.)

Finally the content of carbon in the gas is given by the following formula:

$$K = (a^1 + c^1)\frac{0.536\ (a^1 + c^1)}{100}$$

the result being expressed in kilograms of carbon per hundred cubic meters of the gas at zero degrees C. (32 degrees F.) and 760 millimeters pressure. (Multiply by the factor 0.06 to obtain the result in terms of pounds of carbon per hundred cubic feet of gas.)

Required Combustion Air

Figure 2 shows a series of curves which will allow the determination of the required amount of air to burn a unit amount of carbon in forming a gas of certain composition and also the required amount of steam per unit weight of carbon to obtain this gas.

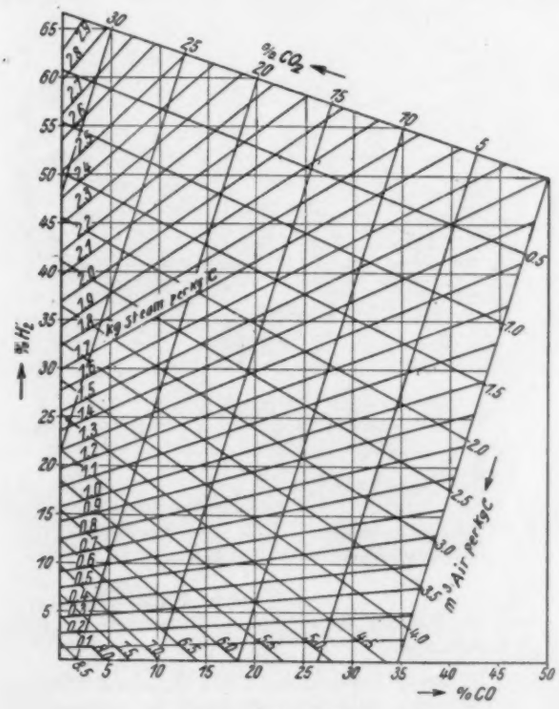


Figure 2

The figures in this curve are in terms of kilograms of steam per kilogram of carbon and cubic meters of air per kilogram of carbon. The latter figure is converted into cubic feet of air per pound of carbon by multiplying the result read off the curve by the factor 1.6, and the former figure is converted into pounds of steam per pound of carbon without any change, in that both sides of the fraction are multiplied by 2.2, which cancels out.

(After developing the equations for the primary gas, which differs from regular producer gas in that the latter contains methane and also oxygen, hydrogen and nitrogen which come both from the coal and from the air admitted into the apparatus, the author proceeds with the derivation of equations which take into consideration these differences. Trans.)

It is held that the formation of methane takes place in accordance with the equation: $C + 2H_2 = CH_4$. Then the equations that apply to the formation of the complete producer gas are as follows:

a) $C + O_2 = CO_2$	partial factor a.
b) $C + 2H_2O = CO_2 + 2H_2$.	partial factor b.
c) $C + CO_2 = 2CO$	partial factor c.
e) $C + 2H_2 = CH_4$	partial factor e.

Volume of Gases

The volume of various gases in the mixture is then expressed as follows:

volume of carbon dioxide $= (a + b - c)\ 22.4$;
volume of hydrogen $= (2b - 2e)\ 22.4$;
volume of carbon monoxide $= 2c \times 22.4$;
volume of methane $= e \times 22.4$;
volume of nitrogen $= a \times 3.7619 \times 22.4$.

The total volume of the gas is then equal to the following: $S \times 22.4 = (4.7619\ a + 3b + c - e)\ 22.4$. Then in each case, if the percentage of ingredient of the gas is designated by a^1 in the case of carbon dioxide, b^1 in the case of carbon dioxide and hydrogen, c^1 in the case of carbon monoxide, e^1 in the case of methane and d^1 in the case of nitrogen, the following equations may be written:

$$(1)\ a^1 = \frac{a + b - c}{s} \times 100$$

$$(2)\ b^1 = \frac{(2b - 2e)}{s} \times 100$$

$$(3)\ c^1 = \frac{2c}{s} \times 100$$

$$(4)\ d^1 = \frac{a \times 3.7619}{s} \times 100$$

$$(5)\ e^1 = \frac{e}{s} \times 100$$

The equation for the composite gas is then derived to be as follows:

$4.7619a^1 - 0.8809b^1 + 2.8809c^1 - 2.7619e^1 = 100$, and if the presence of the excess of hydrogen x and the excess of nitrogen y be taken into consideration, then the value of the equation becomes as follows:

$4.7619a^1 - 0.8809b^1 + 2.8809c^1 - 2.7619e^1 = 100 - 1.8809x - y.$

This is then the equation of an ordinary producer gas which contains a^1 per cent of carbon dioxide, b^1 per cent of hydrogen, c^1 per cent of carbon monoxide, d^1 per cent of nitrogen and e^1 per cent of methane, and in whose manufacture excess nitrogen, oxygen and hydrogen are added.

Determining the Unknowns

The question still remains as to the method which is used in determining the two unknowns in the equation, that is x and y. The necessary equations for accomplishing these determinations can be obtained from the coke analysis when certain assumptions are made. The second of these equations is, however, not necessary under ordinary conditions, as y may be neglected. The equation also affords the possibility of reducing the ordinary producer gas in a very simple and useful graphical method. Furthermore, the graphical representation of the ordinary producer gas is possible without reduction.

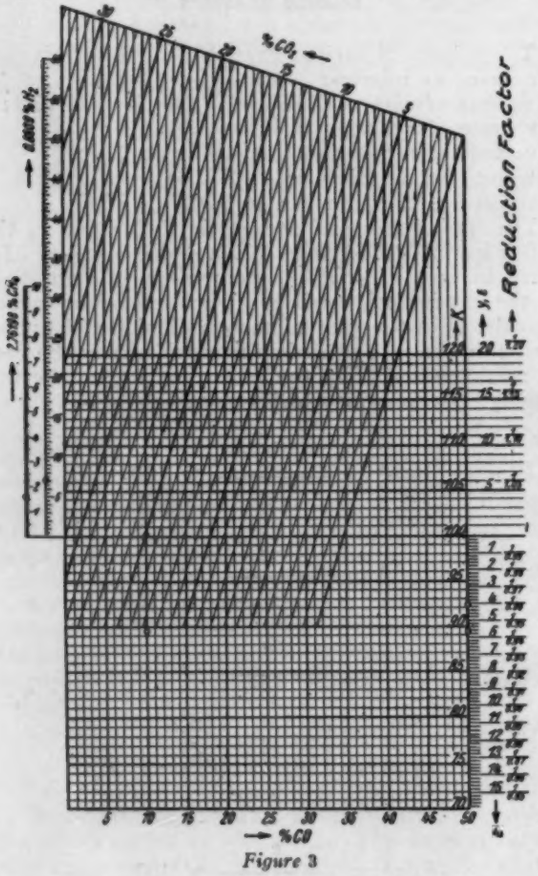


Figure 3

If the factor K is used to designate the right hand side of the equation, namely $K = 100 - 1.8809x - y$, then the value of K will afford information on the nature of the added ingredients. Thus if K is greater than 100 then only excess oxygen is added, and hence x is equal to zero and y can then be determined from the above equation for the producer gas, as, inasmuch as $K = 100 \times y$. If, on the other hand, K is less than 100, then either excess hydrogen and excess nitrogen are added or either one of the two alone.

An Example

An example illustrating the use of these equations and various diagrams will now be given. We have an ordinary producer gas. The various coefficients are determined with the aid of figure 3. If the value of K is greater than 100 or if it is equal to 100, then the determination of y and R (which is the reduction factor) can be carried out with the aid of figure 3.

On the other hand, if K is less than 100, then there are two methods which are available for the reduction, which will be explained by examples. The analysis of the gas is accordingly given as a^1 (percentage of carbon dioxide) 15.0, b^1 (percentage of hydrogen) 7.1, c^1 (percentage of carbon monoxide) 10, d^1 (percentage of nitrogen) 66.3 and e^1 (percentage of methane) 1.6.

Excess Nitrogen Included

In the first case y is not neglected. In the second place the values of u and v are determined from the analysis of the coke (u being the percentage of hydrogen and v the percentage of nitrogen per one kilogram of coke). These are found to be $u = 3.29$ and $v = 7$. These values are obtained from figures 4 and 5.

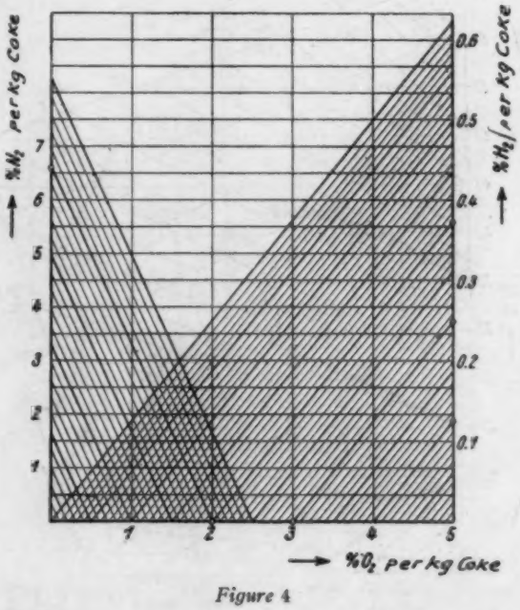
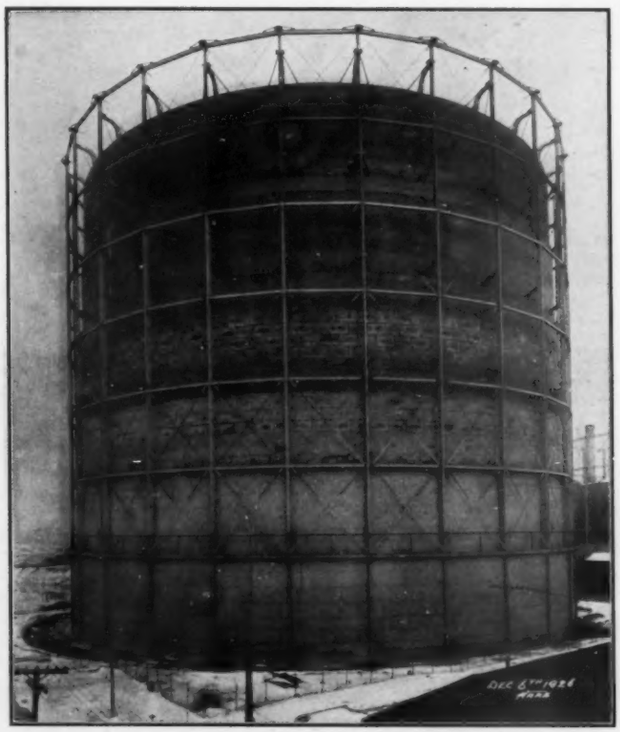


Figure 4

Both of these curve sheets are obtained with the aid of the coke analysis. It must be remembered that we are dealing here with the effect of the nitrogen, oxygen and hydrogen that are in the coke on the composition of the gas that is manufactured from it. Thus figure 4 enables the determination of the excess ingredients in the gas. For example, if the coke analysis was as follows: 3 per cent of oxygen, 5 per cent of hydrogen, 6.6 per cent of nitrogen, figured on the weight of one kilogram (2.2 pounds) of coke. Then it is seen from figure 4 that 6.6 per cent of nitrogen will combine with two per cent of oxygen to form the correct proportion of nitrogen to oxygen in air, and the rest of the oxygen, which amounts to 1 per cent, combines with 0.125 per cent of hydrogen to form water. There therefore remains 5 less 0.125

SAFETY—ECONOMY—PERMANENCY



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A Peculiar Fact

MANY companies seem to think that in order to sell a lot of automatic storage water heaters the first cost must be low, and they are looking for the very cheapest they can buy.

The Copper Kompak is not cheap, but the price is low for the quality. Practically without exception, every Gas Company which has rather skeptically put the Kompak on sale has found a constantly growing volume of business, showing that the public are eager for quality heaters.

Are you one of the doubters?

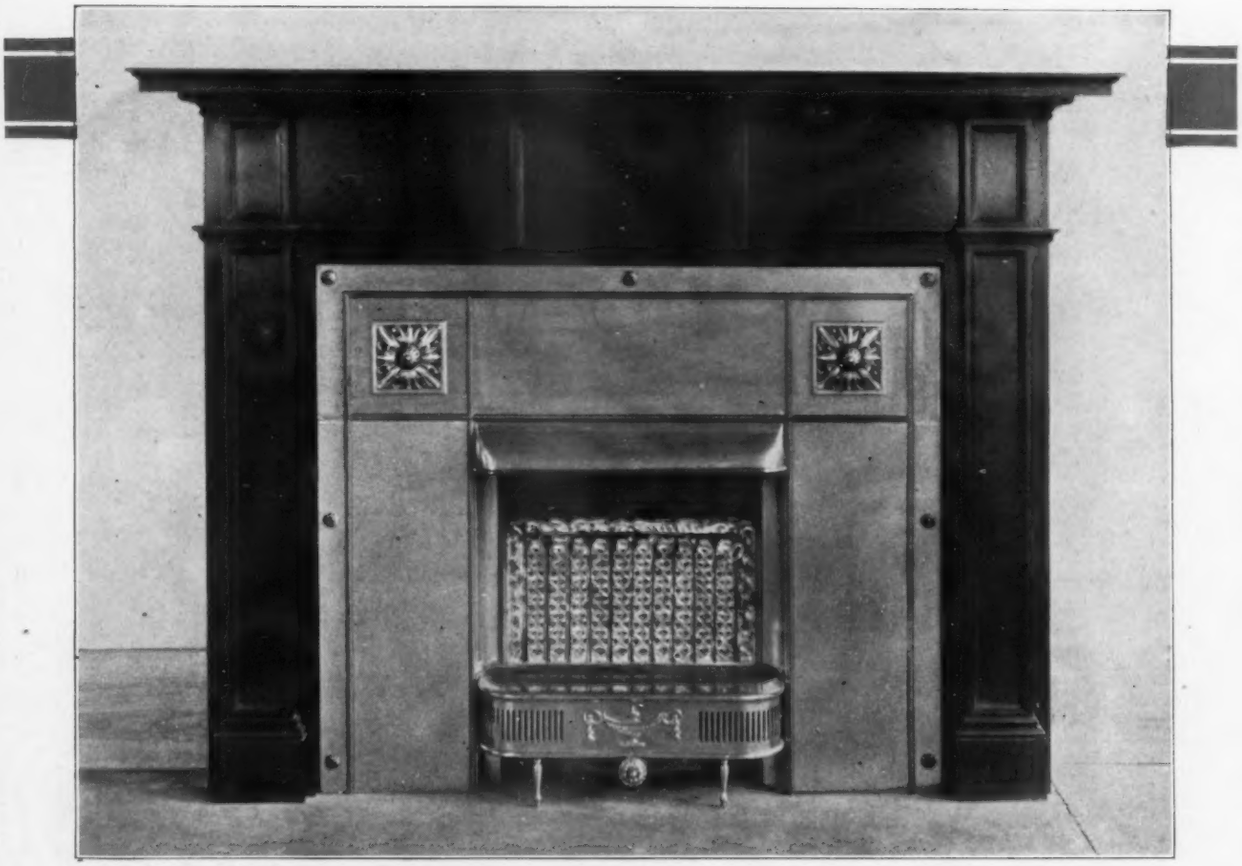
Why not "try out" a COPPER KOMPAK on *your* public and find out for yourself.

Yours very truly,

THE KOMPAK COMPANY

H. J. Long, *President*

KOMPAK



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There is an unusual sales opportunity offered you in this Humphrey product. A fireplace makes any home more cheerful . . . more inviting, and now any home owner may install one at low cost. The Humphrey Radiantfire-Mantel is easy to install—requires no skilled labor—no tile setting—and eliminates that expensive chimney and ash pit construction typical of the old fashioned fireplace. These exclusive, practical advantages are appealing to an ever-increasing number of home owners . . . and substantial sales will reward the dealer featuring this product.

The Humphrey Radiantfire, paneling and hood, are of genuine stainless steel with an armour bright finish that looks like finely chased silver—a finish that will always stay beautiful. The wood mantel which encloses it is of the finest cabinet work.

THE HUMPHREY RADIANTFIRE MANTEL

No. 500—Finish—3 coats flat white, list . . . . . $ 98.00
No. 501—Finish—Mahogany, list $105.00

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General Gas Light Company, Kalamazoo, Michigan

New York, 44 West Broadway San Francisco, 135 Bluxome Street

Of course you expect
Estate to advertise GAS HEATROLA in a big way

WHEN you open your copy of the September 24 Saturday Evening Post, you will see the big announcement of the new Estate Gas Heatrola. Two pages—two colors! Bigness demands bigness. And, throughout the Fall, national advertising will continue in The Saturday Evening Post, Woman's Home Companion and McCall's Magazine. Another heating success is in the making.

You know how people welcomed the Estate Heatrola for coal. Tens of thousands of them replaced their old-fashioned stoves wth this new-day heater. And now gas users can enjoy all the advantages of Heatrola heating. Tens of thousands of them will be glad to discard room-heating for house-heating. Again Heatrola will make heating history.

Just think—a gas heater that looks like a fine mahogany cabinet—that circulates a great volume of healthful heat to every room—that keeps all the rooms uniformly comfortable. Clean, fume-tight, odor-tight, permanently beautiful. That's the Estate Gas Heatrola.

America demands higher standards of living. The market is waiting for the Gas Heatrola.

Are YOU ready for a house-heating load? Then write us. You will find that we can help you get it. Details of the comprehensive merchandising plan back of the Estate Gas Heatrola will be gladly submitted.

The Estate Gas Heatrola has been tested and approved by the Laboratories of the American Gas Association.

The Estate Gas Heatrola—for complete heating of small homes. Burns either manufactured or natural gas. Finished in everlasting, vitreous enamel, grained to resemble mahogany.

THE Gas Heatrola has a highly efficient new gas burner and a completely enclosed, fume-tight heating unit of unique construction, which gives great length to the travel of the products of combustion. There is no other home-heater like it in the world!

THE ESTATE STOVE COMPANY *House Founded* 1845 **Hamilton, Ohio**

Estate GAS HEATROLA

or 4.875 per cent of hydrogen per kilogram of coke (2.2 pounds). The value of u is then found with the aid of curve sheet figure 5, which is simply this value of hydrogen figured in terms of one kilogram of carbon (2.2 pounds), when the percentage of carbon in the coke is known.

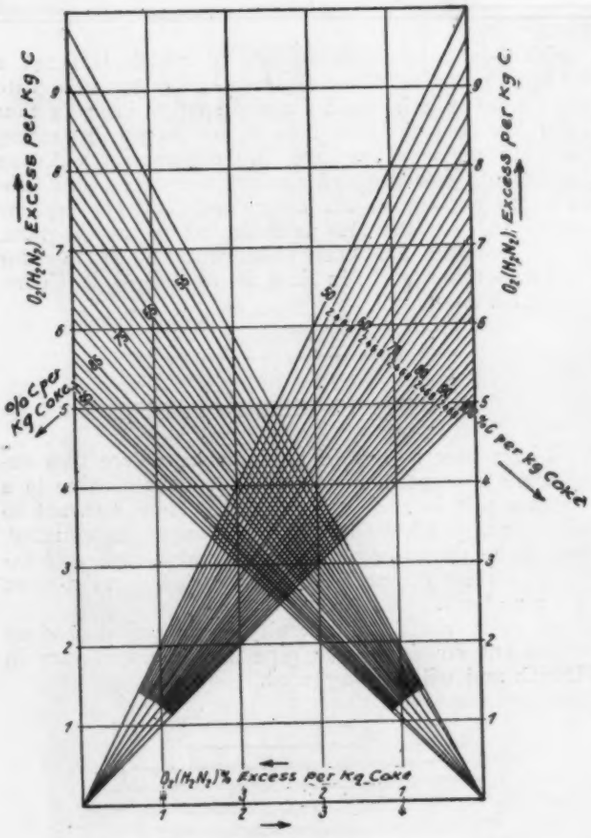


Figure 5

The reduction factor then becomes equal to the following:

$$R = \frac{100}{100 - x - y + e^1} = \frac{1}{0.9555}$$

Control is effected with the aid of figure 3.

Using the Graph

In the first place, the intersection of the straight lines a^1 equal to 15 and c^1 equal to 10 is determined. Then the value of b^1 and of e^1 is determined with the aid of a pair of compasses on the scale to the left of the curve and these points are plotted vertically down from the point of intersection. The value of the factor or coefficient K is then read off from the ordinate scale at the right of the curve. This value is K = 89.4. Then the value of y is laid off from this point upward, and this point gives x = 5.25, which is the same value as what has been given above, furnishing a check of the calculations.

The reduced analysis is then as follows:

$$a^1 = \frac{15}{0.9555} = 15.7. \quad b^1 = \frac{7.1 - 5.25 + 3.2}{0.9555} = 5.3.$$

$$c^1 = \frac{10}{0.9555} = 10.5. \quad d^1 = \frac{66.3 - 0.8}{0.9555} = 68.5.$$

One cubic meter or one cubic foot of the gas is therefore composed of 0.9555 cubic meter or cubic foot of primary gas and the remainder consisting of 0.0445 cubic meter or cubic foot containing 2.05 per cent of hydrogen, 1.6 per cent of methane and 0.8 per cent of nitrogen, these figures being based on the volume of the given producer gas.

Excess Nitrogen Neglected

In the second case the value of y is neglected. The reduction in this case is again carried out with the aid of figure 3. The value of K is 89.4 and that of x is 5.65 corresponding thereto. Then $x - e^1 = 5.65 - 1.6$ or 4.05. The value of R is the reciprocal of 0.9595. The reduced analysis is then as follows:

$$a^1 = \frac{15}{0.9595} = 15.64. \quad b^1 = \frac{7.1 - 5.6 + 3.2}{0.9595} = 4.84.$$

$$c^1 = \frac{10^1}{0.9595} = 10.43. \quad d^1 = \frac{66.3}{0.9595} = 60.09.$$

Hence the ordinary producer gas is divided into two parts again, that is one cubic meter or cubic foot of this gas consists of 0.9595 cubic meter or cubic foot of primary gas with the above composition and a residual of 0.0405 cubic meter or cubic foot, composed of 2.45 per cent of hydrogen and 1.6 per cent of methane, figured on the volume of the ordinary producer gas.

In spite of the high given value of v and hence of y, the two reduced analyses differ but little from each other.

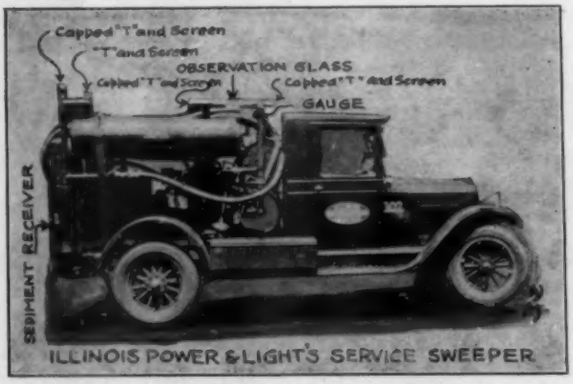
While these graphs indicate the relationship that exists between the conditions of applying the gas, its analysis and the conditions under which it is produced, there are nevertheless certain factors, such as pressure, temperature and speed of reaction which are not shown in them. It should be remembered that these factors are dependent on influences which can scarcely be controlled or changed. Thus, for example, the pressure is dependent on the character of the coke, the height of the fuel bed, the tendency of the coke to cake, the speed of reaction on the catalytic action of the coal, or rather of the ash in the coal, on the magnitude and number of separating surfaces, etc. All these factors have different values at different moments in the operation of the producer. Different kinds of gas are being produced at any point and the final gas is a mixed gas. The operating conditions, which have been depicted in this graphical analysis, are of some importance, but not of predominating influence in determining the character of this mixed gas.

Practical Ideas from Practical Men

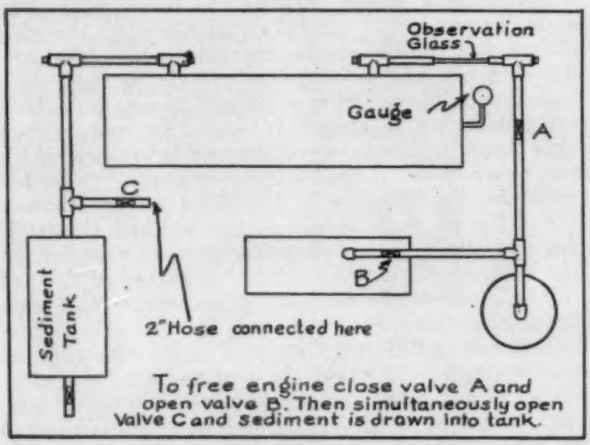
Novel kinks and improved short cuts in the plant, distribution, utilization and office

APPARATUS FOR CLEARING SERVICE STOPPAGE

C. R. Grine, superintendent of distribution in East St. Louis, has devised an ingenious apparatus to entirely eliminate trouble calls from any type of service stoppage. This apparatus consists of an Ingersoll-Rand air compressor mounted on a Chevrolet truck with a vacuum and sediment tank, which



sweeps services. In operation the compressor is started and a vacuum of 27 lbs. is created, the valve on the compressor is then closed and the intake valve opened in order to free the engine (valves "B" and C). Then these valves are opened simultaneously and the third valve ("A") on the vacuum tank is opened causing the sediment and condensation to flow into the sediment tank.

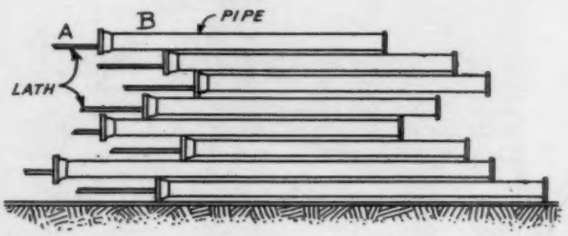

Observation Glass
Gauge
A
C
B
Sediment Tank
2" Hose connected here
To free engine close valve A and open valve B. Then simultaneously open Valve C and Sediment is drawn into tank.

As will be noted from the diagram, the lines from the pressure tank to the vacuum tank is equipped with 2-inch lines at the top of which is fitted a 2-inch glass tube for observation purposes. Into the glass tube is fitted a damp sponge in order that the fine dust particles may be picked up in passing and in no way get into the compressor. As an additional safety guard against dirt or foreign substances getting in the compressor, copper screens are fitted into the tees as indicated on the diagram. This machine has been successfully used now for the past two months in East St. Louis.—C. R. Grine, East St. Louis, Ill.

COUNTING PIPE IN A PILE

The writer knows of an instance where two engineers attempted to count the lengths of pipe in a certain pile in the storage yard. They resorted to the use of chalk for marking the lengths as counted, and notwithstanding that considerable care was exercised their respective counts varied greatly, even on a recheck.

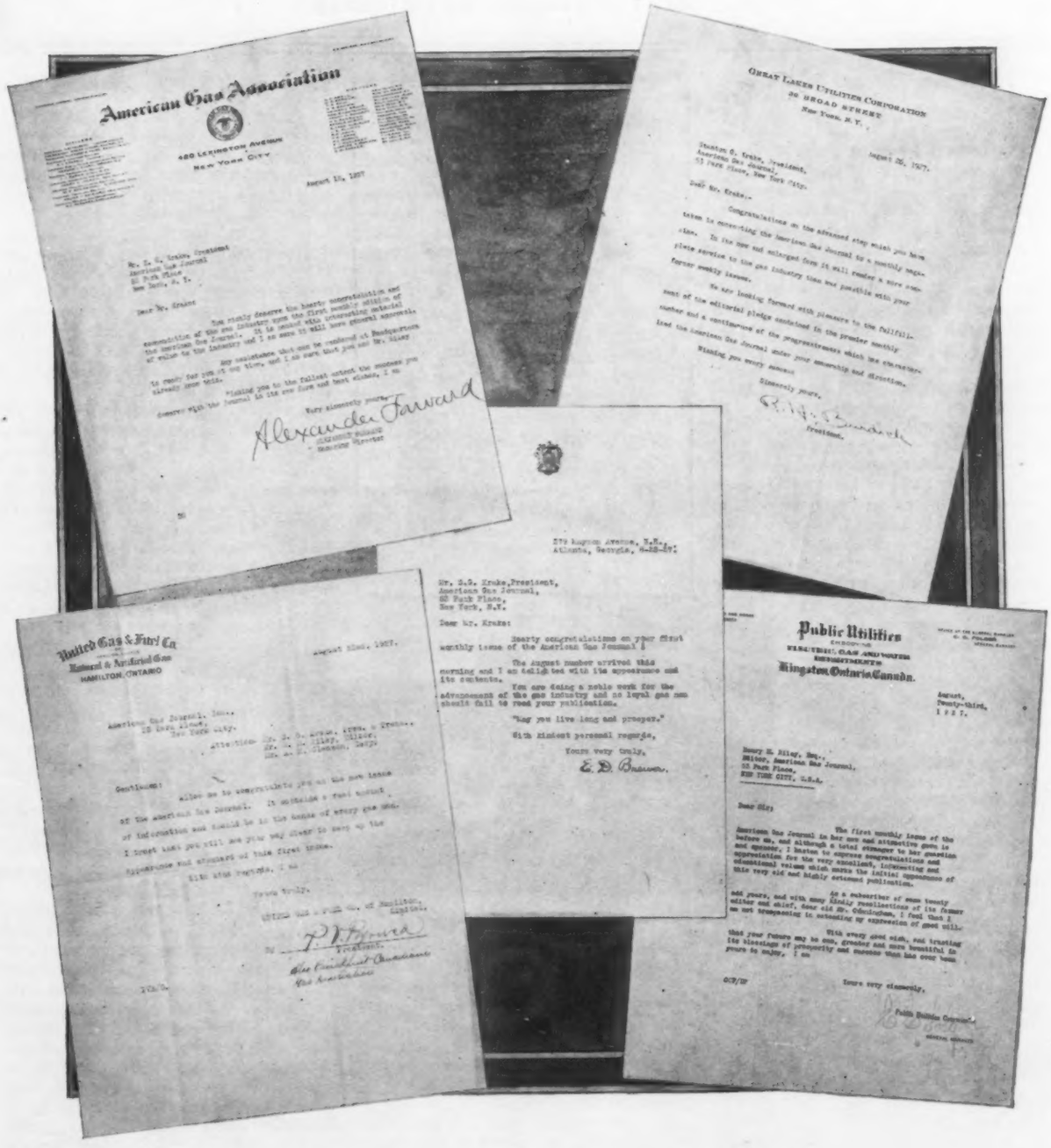
In using chalk the difficulty is somewhat obvious when one considers that pipe in a pile will vary in length and will be staggered.



The suggestion is made that, when counting a pile of pipe, a number of ordinary building laths be used. As each pipe is noted a lath can be introduced into it with sufficient of overhang to be readily discernable.

Assume, with such a procedure, that the man counting the lengths roughly estimates that there are three hundred lengths in the pile. Further, assume that he has a pile of three hundred laths. Then, as he counts the pipe he introduces a lath into each length and, for example, if he has three laths left at the end of the operation there are obviously two hundred and ninety-seven lengths in the pile.

The writer has seen this method resorted to on a number of occasions with accuracy and despatch. Peculiarly the scheme outlined was suggested to the two engineers mentioned above by a cart driver.—G. Goodwin, New York City.


American Gas Association
420 Lexington Avenue
New York City
Alexander Forward
General Manager
Great Lakes Utilities Corporation
30 Broad Street
New York, N.Y.
President.
379 Kapron Avenue, N.E.,
Atlanta, Georgia, 8-22-27.
Mr. S.G. Krake, President,
American Gas Journal,
42 Park Place,
New York, N.Y.
Dear Mr. Krake:
Hearty congratulations on your first monthly issue of the American Gas Journal!
The August number arrived this morning and I am delighted with its appearance and its contents.
You are doing a noble work for the advancement of the gas industry and no loyal gas man should fail to read your publication.
"May you live long and prosper."
With kindest personal regards,
Yours very truly,
E. D. Boland.
United Gas & Fuel Co
Natural & Artificial Gas
HAMILTON, ONTARIO
August 22nd, 1927.
American Gas Journal, Inc.,
42 Park Place,
New York City.
Gentlemen:
P. D. Forward
President.
Public Utilities
Kingston Ontario Canada.
August,
Twenty-third,
1927.
Henry H. Klieg, Esq.,
Editor, American Gas Journal,
42 Park Place,
NEW YORK CITY, U.S.A.
Dear Sir:
The first monthly issue of the American Gas Journal is here and although a total stranger to her guardian and sponsor, I hasten to express congratulation and appreciation for the very excellent, interesting and educational volume which marks the initial appearance of this very old and highly esteemed publication.
As a subscriber of some twenty odd years, and with many kindly recollections of its former editor and chief, dear old Mr. Cunningham, I feel that I am not trespassing in extending my expression of good will, and yours, and with every good wish, and trusting that your future may be one, greater and more bountiful in its blessings of prosperity and success than has ever been yours to enjoy, I am
Yours very sincerely,
Public Utilities Corporation.

Some Opinions of the American Gas Journal as a Monthly

Association Activities

A. G. A. and affiliated gas associations' sectional activities and convention calendar

The Coming Chicago Convention

Every gas man who attends the Ninth Annual Convention of the American Gas Association is going to materially assist in creating a bigger and better industry.

Conventions have proven themselves valuable as builders of individual ability and as training schools for the bigger job ahead.

The present problems of the gas industry are materially different from those of several years ago. Indeed, they are not only more numerous, but, perhaps, more vexatious as well.

The Chicago convention offers a real opportunity for gas men to study these problems and to interchange ideas and opinions that will be beneficial to themselves and their companies as well.

Forward looking executives and manufacturers in the gas industry are well aware that much of their success is chargeable to a regular attendance at the annual meetings of the association. Gas men will go to Chicago because they cannot well afford to stay away, because they value the friendships they will renew and the contacts they will make.

The solution of the industry's problems does not rest with the individual alone and he dare not trust himself. Where will he get the information? Where can he ask and secure the answer which means so much to him? And, when he gets the solution, will it be the correct one?

The Chicago convention will bring together men who have clearer ideas on all of the subjects than have ever before gathered for conference. They will bring to the solution of every pertinent question the wisdom gained by long experience, thorough training, successful application of their ideas, and in the discussion no question will be too trivial to command consideration, nor too complex to secure careful study of recognized experts.

No gas company that is progressive and is preparing for better things ahead is the same today as it was five years ago. The conditions then unlocking the doors of success to the industry no longer provide the key to it. The Chicago convention is the gas man's opportunity to check up on himself and to see how far he has slipped in his method of doing business, in his capacity to absorb and to put into use new ideas.

CONVENTION CALENDAR

September

12-16—Pacific Coast Gas Association. Annual convention, Hotel Casa del Ray, Santa Cruz, Cal. Clifford Johnstone, secretary, 447 Sutter Street, San Francisco.

October

6-7—Empire State Gas and Electric Association. Annual meeting, Lake Placid Club, Lake Placid, N. Y. C. H. B. Chapin, secretary, Grand Central Terminal Building, New York, N. Y.

10-14—American Gas Association. Annual meeting, Stevens Hotel, Chicago, Ill. Alexander Forward, managing director, 420 Lexington Avenue, New York, N. Y.

View From Roof of Stevens Hotel

In the sectional meetings he can throw his ideas into the common pot and draw out the ideas of others actively thinking on kindred special problems. The engineer can match up his problems with other engineers, and it is the same with the accountant, the advertising man, the insurance man, the manufacturer and all others.

Gas conventions have always been well attended, because they have been built on programs of personal interest and benefit to the delegates who attend.

What the average gas man gets out of his convention depends very much on his ability to turn the information obtained into the blood and sinews of his business. *Come to Chicago. Yes, come on, but take home from Chicago all there is there for you to take.*

Third School for Industrial Gas Salesmen

The entire program of the course is devoted to helping gas companies in the development of industrial sales personnel and it will treat only of the economic and merchandising aspects of the industrial gas problem.

The speakers who are to act as lecturers and instructors are all leaders in their respective fields, and in order to secure this talent the committee finds it necessary to charge a small tuition fee of $20 for the entire course. Arrangements have been made for daily attendance at $3.00 a day.

A feature of the course will be the thorough course in industrial gas salesmanship, by Elmer E. Ferris, Professor of Salesmanship, New York University, who has had considerable contact with the sales of gas for industrial purposes, and who is the author of the "Industrial Gas Salesman," a book now being published by the American Gas Association. This book, which will be available September 1, will be used as a text in the course.

Other subjects of prime importance to the salesman of gas for industrial purposes will be presented, and there will also be two inspection trips, one to the Laboratory of the Consolidated Gas Company of New York, and one to the new Hunt's Point gas plant of the company.

The Committee on the Education of Personnel consists of the following:

J. P. Leinroth, Chairman, Public Service Electric and Gas Company, Newark, N. J.; G. J. Kollock, vice-chairman, Georgia Railway and Power Company, Atlanta, Ga.; W. De Freitas, Consolidated Gas Company of New York, New York City; W. M. Hepburn, Surface Combustion Company, Bronx, New York City; H. F. Rehfeldt, Peoples Gas, Light and Coke Company, Chicago, Ill.; A. A. Schuetz, Milwaukee Gas Light Company, Milwaukee, Wis.; R. H. Staniford, Brooklyn Union Gas Company, Brooklyn, N. Y.; W. D. Thompson, Laclede Gas Light Company, St. Louis, Mo.

As stated, this course bids fair to be a success from every angle, and those who can do so should arrange to be in attendance. It is expected that the attendance will be all that is desired by the sponsors.

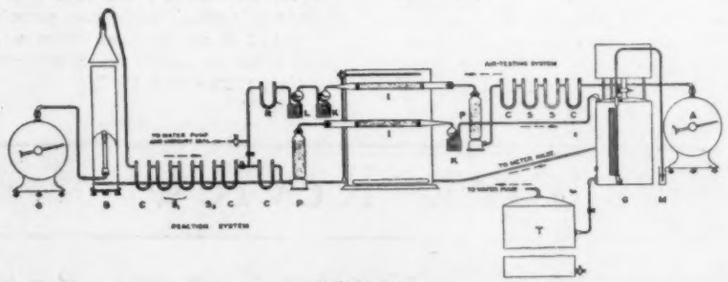
PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

Combustion Products From Coal Gas Flames

The apparatus which is seen in the accompanying illustration is used for the purpose of determining the carbon monoxide in gases obtained by the combustion of coal gas simultaneously with that in the air.

The apparatus consists of two similar parts, first an air-testing system and second a reaction system. In the first the determination of the carbon monoxide in the air of the laboratory was effected and the second system was used for examination of the products of combustion. Iodine pentoxide tubes were used.

The results showed the following: In the first place the accuracy of the method and apparatus was established to be between one and two parts per million. In the second place it was found that flames burning in the air of an ordinary room appear to emit traces of carbon monoxide. An endeavor was also made to calculate the ratio between the carbon monoxide and dioxide in the undiluted products of combustion and mean values found for this ratio for the well-aerated bunsen, poorly-aerated bunsen and luminous flames are respectively 0.00024, 0.00034 and 0.0001. The concentration of carbon monoxide in the undiluted dry products was found to be 31, 44 and 13 parts per million for the three types of flames. Gas Journal (London), Aug. 10, 1927, 334-7.



Air-Testing System.

A.—Air meter. C.—Anhydrous calcium chloride. S.—"Sofnolite." P.—Phosphorus pentoxide. I.—Iodine pentoxide. K.—4 p.ct. potassium iodide. L.—50 p.ct. potash. R.—Soda-lime.

Reaction System.

G.—Gas meter. B.—Burner with sampling arrangements. C.—Anhydrous calcium chloride. S_1.—"Sofnolite"-anhydrous calcium chloride tubes for weighing. S_2.—"Sofnolite"-anhydrous calcium chloride témoin tube. P.—Phosphorus pentoxide. I.—Iodine pentoxide. K.—4 p ct. potassium iodide. A.—Calibrated holder. M.—Mercury gauge. T.—Large cylinder.

Effect of Size of Coal, Admixture and Inorganic Compounds on Coal Carbonization

Experiments were made with a gas coal of moderate coking properties (Nottinghamshire, England) in an experimental plant, the retort being maintained at a temperature of 915 degrees C. Various sizes of coal were used, namely, 1.25 inches to 0.75 inch, 0.5 inch to 0.25 inch, ten to thirty mesh, and through thirty mesh. Mixtures were also made of these coals. The volume of gas obtained in all but the first test on the largest size of coal averaged around 11,940 cubic feet per ton, varying but little in each test, but in the case of the largest size coal, the yield was only 11,270 cubic feet. The yield of ammonia was approximately the same in all tests, being 25.2 pounds of ammonium sulphate on the average. Time-gas yield tests were also carried out Greatest volume of gas was obtained within first half hour with intermediate size of coal.

Comparison of results obtained at 915 degrees C. and 980 degrees C. showed a reduction of 750 cubic feet per ton of coal in gas yield in the former case. Thermal value of gas was lowered by about four therms. Yield of tar was greater at lower temperature.

Coke breeze was mixed with the coal in two proportions, ten and twenty per cent, the coal being ten to thirty mesh in size. The yield of gas in cubic feet and therms and of ammonia per ton of coal is slightly greater in the mixed coke and coal test. Smaller tar yield was obtained in the mixed fuel test.

Mixtures were made of coal with calcium carbonate, iron oxide and sodium carbonate. The ten to thirty mesh coal was used and two per cent of the inorganic mixtures. The added compounds caused increases in the volume of gas made per ton of coal, but the gas was of lower calorific power per cubic foot. The increase in gas volume with calcium carbonate and iron oxide were equivalent to eleven and six per cent, respectively. The largest increase, 24 per cent, was obtained with the sodium carbonate. The quantity of sulphuretted hydrogen in the crude gas was reduced from 400 grains per 100 cubic feet of the crude gas to approximately half this amount by the addition of the three compounds. Ammonia yields with the addition of iron oxide and sodium carbonate were slightly greater than with the coal alone, but when calcium carbonate was added, the yield was increased 35 per cent.

For additional details on this very interesting report, made at the 1927 annual meeting of the Institution of Gas Engineers in London, see the Gas World, 1927, pages 622-633.

Premature Holing of Silica Retorts

A number of experiments were made to determine the causes of the premature formation of holes in a silica retort installation. The retorts were made from ninety-five per cent silica and set in ninety-five per cent silica cross walls without shield tiles. Holes were found to form for the most part on the combustion chamber side of the retorts, and in every case in the bottom segmental tiles. They occurred in the first middles, the second middles, third middles and tops, but there was none in the bottom retorts. Another curious fact was that they all occurred within the first six feet of either end, and there was none in the centre of the retorts. All the holes appeared to start from the inside of the retort and were not caused through a cutting heat on the outside of the retort, as was at first thought, through leaving out shield tiles.

The fluxed material that was formed in the burning of the hole was found to be red in color in the combustion chamber and black under the producer arch. Iron was responsible for the color, the red color being produced in the oxidizing conditions in the combustion chamber and the black color by the reducing conditions of the arch.

It is known that iron has a deleterious effect on silica and experiments were made with iron filings on a silica brick which was fired at temperatures of 1230 and 1250 degrees C. Another experiment was tried with iron oxide and coke.

From the results of these experiments it was concluded that the holes are always in the bottom tiles of the retorts (except where dripping had taken place on the crowns from a hole above) and point to iron introduced with the coal, probably in the form of loose iron, such as bolts, nuts, etc., and perhaps as iron pyrites. The experiments that were carried out with iron on silica brick in a test furnace reproduce a similar condition.

Various theories are advanced for the real causes of the formation of these holes and rejected for one reason or another. The presence of iron in the silica itself is discussed. The Gas World, 1927, pages 683-687.

Regulating Pressure in Hydraulic Main

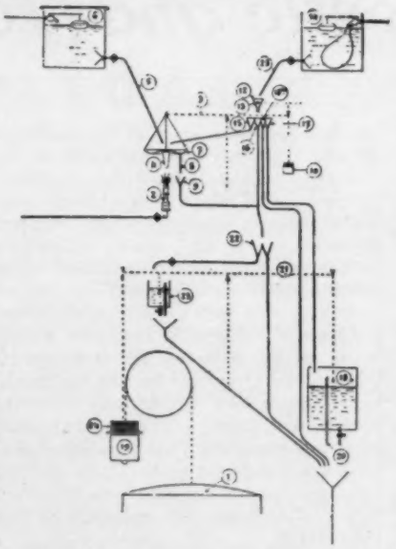
The apparatus shown in the accompanying illustration is for the purpose of regulating the pressure in the hydraulic main. It consists essentially of a beam balance at the extremities of which are suspended, first an evaporator device, 4, 7 and 8, under which a Bunsen burner is arranged fed with the gas coming from the extractors, and second a counterweight system 10 which on falling shifts the position of a movable funnel 12 which is fed from a system of fixed funnels, 15, 16, 16^1 and 17, connected with the containers 18 and 23, or the evaporator 4, two feed tanks 6 and 14 aiding in the regulation.

Below the double effect regulator is located another balance carrying a counterweight at one end with movable weights 24 and a tank 18 at the other.

The regulator works in such a fashion that the beam 3 remains horizontal for a given weight of water in the evaporator. With a normal gas the quantity of water evaporated is equal to any moment to the quantity of water admitted into the system from the intermediate tank 6.

When the thermal power of the gas decreases, the quantity of water evaporated decreases, but on the other hand the quantity of water fed into the apparatus remains constant and the weight of the evaporator accordingly increases which disturbs the equilibrium of the balance 3. The depression of the beam of the balance causes the shifting of the movable funnel 12 and directs the flow of water from the tank 14 first into the funnel 16^1 which communicates with an external reservoir, then into the funnel 17 communicating with 18. This carries an outlet pipe 20 whose rate of water outflow is appreciably less than the inflow from the tank 14, the result being that the level of water rises therein and eventually causes the movement of the beam 21 of the balance, lifting the counterweight.

When the calorific power of the gas has become normal, then the balance and the rest of the apparatus resumes its normal status. If the thermal power is too



high, then the evaporation is too rapid, the beam is again moved, the counterweight 10 is lowered and the movable funnel is again shifted, and regulation ensues. Journal des Usines a Gaz, 1927, pages 261-3.

Removing Naphthalene From Gas

The prevention of the deposition of naphthalene in the gas mains of a distribution system in a Dutch city was accomplished by the aid of the solvent xylol and the like. When the vapor tension of a substance, dispersed in vapor form, is greater than the vapor pressure of the same substance but in solution then the vapor will be precipitated in the solution. The quantity of the precipitated substance will rise with its solubility. Inasmuch as the solubility increases with the similarity of the chemical structure of two substances, the aromatic hydrocarbons, such as benzol, toluol, xylol, etc., are better suited for preventing the deposition of naphthalene than either alcohol or petroleum. The action of petroleum depends, it is claimed, on the proportion of cracked products present in it, and furthermore on the fact that the pipes are wetted with the petroleum whereat the naphthalene cannot find rough spots on which to form crystals. Het Gas, 1927, pages 160ff.

Book Review

Public Utility Finance

Public Utility Finance, by Walter E. Lagerquist. 671 pages. Published by A. W. Shaw Company, Chicago. Price, $7.50.

Mr. Lagerquist, counsellor on investments of the American Exchange-Irving Trust Company, has compiled a comprehensive and authoritative collection of materials for the study of public utilities that fills a long felt want.

When one considers the fact that only one book has hitherto appeared on the subject of public utility finance—that of Milton B. Ignatius on "The Financing of Public Service Corporations," an excellent book, but dealing largely with general corporation finance and the regulatory side of public utility, it becomes evident that Mr. Lagerquist has accomplished a prodigious task.

The subject matter is divided into twenty-six chapters. In a majority of these chapters a great deal of material has been written by the leading men in the public utility field. To illustrate, Mr. Martin J. Insull has written on "Electric Light and Power Investment Companies"; Mr. J. C. Dickerson on the "Cost of Gas in Relation to Sales"; Mr. Henry L. Doherty on "Some Difficulties Under Which Public Utilities Operate," and so on.

Athough there has existed a large amount of valuable material in the public service field, this material unfortunately was not generally available or in such form that it could be turned to conveniently and quickly by the public utility executive.

Industrial Research Laboratories of the United States

By Clarence J. West and Ervye L. Risher, Washington, D. C. National Research Council, National Academy of Sciences. 153 pages. $1.00.

Upwards of one thousand laboratories which carry on research work are listed in this publication. In addition, the nature of the research work, the proportion of time spent in the same and the names of those persons constituting the research staffs are given.

The list includes a great number of industrial organizations as well as public utility companies.

In the back of the publication are given the names and addresses of the directors of research in alphabetical order and the geographical distribution of the laboratories by states.

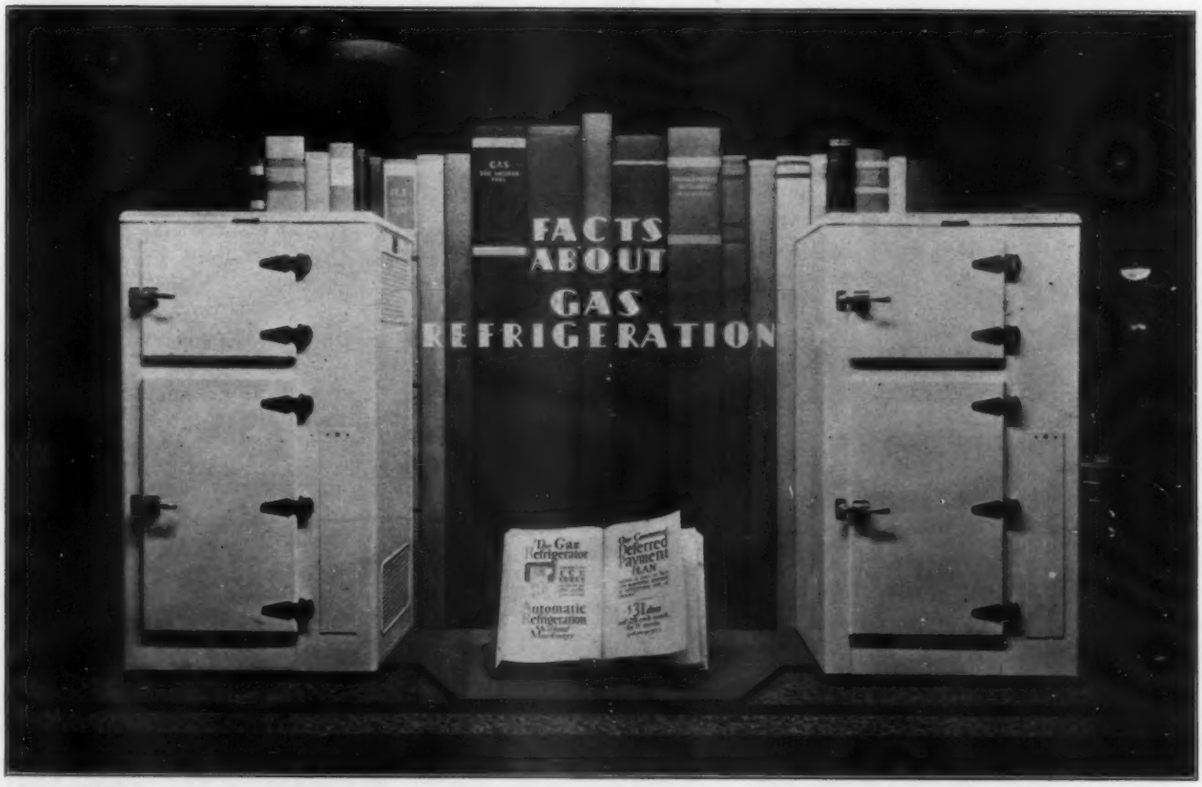
To those who are actively engaged or interested in matters of research this volume will be of considerable interest.

Changing "Is That So" Into "Install One"

A window display that speaks "volumes" on an interesting subject

By Ray Martin

Display Manager, Consolidated Gas Company of New York



"FACTS about Gas Refrigeration" is just about what the public is interested in at the present moment. Most everyone is frankly puzzled by the paradox that heat makes ice. Gas consumers actually want to know how gas heat produces refrigeration.

Obviously, the mere showing of a gas refrigerator in a window will accomplish no more than the announcement that refrigeration by gas is an accomplished fact, i.e., it will create a certain amount of interest and people will say with surprise, "Is that so," but it will not sell gas consumption.

Gas refrigeration can only be sold by means of facts. Consumers must be educated to the point where refrigeration by gas means *no moving parts, cheaper operation, no replacement, silent operation, no interference with dad's radio set,* and a host of other advantages.

Every passing week witnesses the installation of numbers of electric refrigerators in homes not sufficiently familiar with our gas box. These are the very homes that will be the last to install gas refrigeration because it will be difficult to convince them of the advisability of junking two or three hundred dollar investments.

This is the time for action, and now is the time for window display advertising that presents "Facts about Gas Refrigeration."

GAS MERCHANDISING

Domestic Home Service

It Is Systematic Selling That Sells the Most Gas Ranges

By Frank H. Williams

IT IS a very interesting proposition to go into different cities and to see whether the gas companies in such cities are selling the most gas ranges or whether the retail stores are getting the bulk of such business.

In some cities it is found that the gas companies are getting much the greater part of such business, while in other cities it is found that the gas companies are doing but little in the way of selling gas ranges.

Why is there this difference in conditions?

An investigation was made recently to secure the answer to this question and it was found that where the gas companies are doing a big business in the selling of ranges there is, practically always, a systematic effort to sell ranges, while where the retail stores are securing the most of the business the gas companies generally do their selling of ranges on what is simply a haphazard plan.

Waiting for Business

For instance, the writer recently went into a gas company in a prosperous town of about 30,000 and asked the manager how his gas range business was.

"We don't do much business in selling ranges," the manager replied. "We find that the retail stores have this business pretty well sewed up and it isn't worth our while to bother with it."

"But you do sell some ranges, don't you?" the interviewer persisted.

"Oh, yes, we sell some ranges all right. If anyone comes to us and asks us to sell them a range, we naturally do so."

Contrast this method of selling ranges with the method found in another live wire city of about the same population. The gas company in this latter city has a big lobby with a very attractive display of ranges and with a young lady right on the job to talk ranges to interested people. This young lady was seated at a desk in the middle of the lobby and when not talking ranges to customers was busy with some routine detail work.

"We sure sell a lot of ranges," declared the manager of this gas company.

"How do you do it?" the manager was asked.

Going After Business

"By getting out after the business all the time," declared the manager, "and by keeping records of our customers so that we can tell right away quick whether or not any particular gas user in this territory has a new range bought from us or not. This is a big help to us in knowing where to send our canvassers and in knowing what to say to such folks when we do solicit them for range business."

So there you are—the companies that get after the business are the ones that do the business. And the ones that get after the business with a real system are the ones that do the most business.

And it is also very interesting to note that a large number of the gas companies which are the most successful in selling ranges have a definite record, of the sort mentioned by the above manager, for each customer, telling just what the situation is with regard to that customer's gas range.

Undoubtedly this sort of a record is just about the foundation for a successful sales system in putting across the sale of more ranges. And, no doubt, many other companies could adopt the same plan with equally good results.

Getting Data on Prospects

Another system used with much success by many companies which attain high records in the sale of ranges to their gas users, consists in taking careful note of the name and address of every prospect who manifests an interest in a gas range and then keeping after such a prospect until a sale of a range is made or until it becomes absolutely certain that the sale cannot be made.

"We are extremely particular in this office," declared the manager of a fairly large gas company office, "about following up all prospects. We watch all customers coming into the office very carefully and if a customer stops at one of our ranges and shows an interest in a range, there is always someone near to step up to the customer and find out if the customer is simply idly curious or what. If it is anything more than idle curiosity, the name and address of the customer is secured and an immediate effort is made to sell the range to the customer. This is a real sales effort and it results, many times, in the putting across of sales that otherwise might not have been made.

"Then if the customer is evidently a live prospect and if the sale isn't immediately made, we send out a salesman to follow up this customer and we instruct this salesman to hang to it until the sale is either made or lost.

"We keep after prospects hard in this way, because we feel that if we don't sell the range to the customer someone else is pretty sure to do so within a short time and we might as well have the business as anyone else.

"I attribute much of our success in selling ranges to this system of following up customers so very

September 24, 1927

marks the appearance of the second two-color, double-page advertisement of American Stove Company in the Saturday Evening Post. (*See following pages*).

The circulation of this one advertisement will be more than three million copies.

In addition to this Biggest-of-All Gas Range Advertisements the story of Red Wheel supremacy will be told to every gas range prospect through the pages of

Liberty	**Good Housekeeping**
Collier's	**Modern Priscilla**
Pictorial Review	**Delineator**
McCall's	**Woman's Home Companion**

In the above publications, during the last five months of 1927, more than 17,500,000 full-page, two-color Red Wheel advertisements will appear.

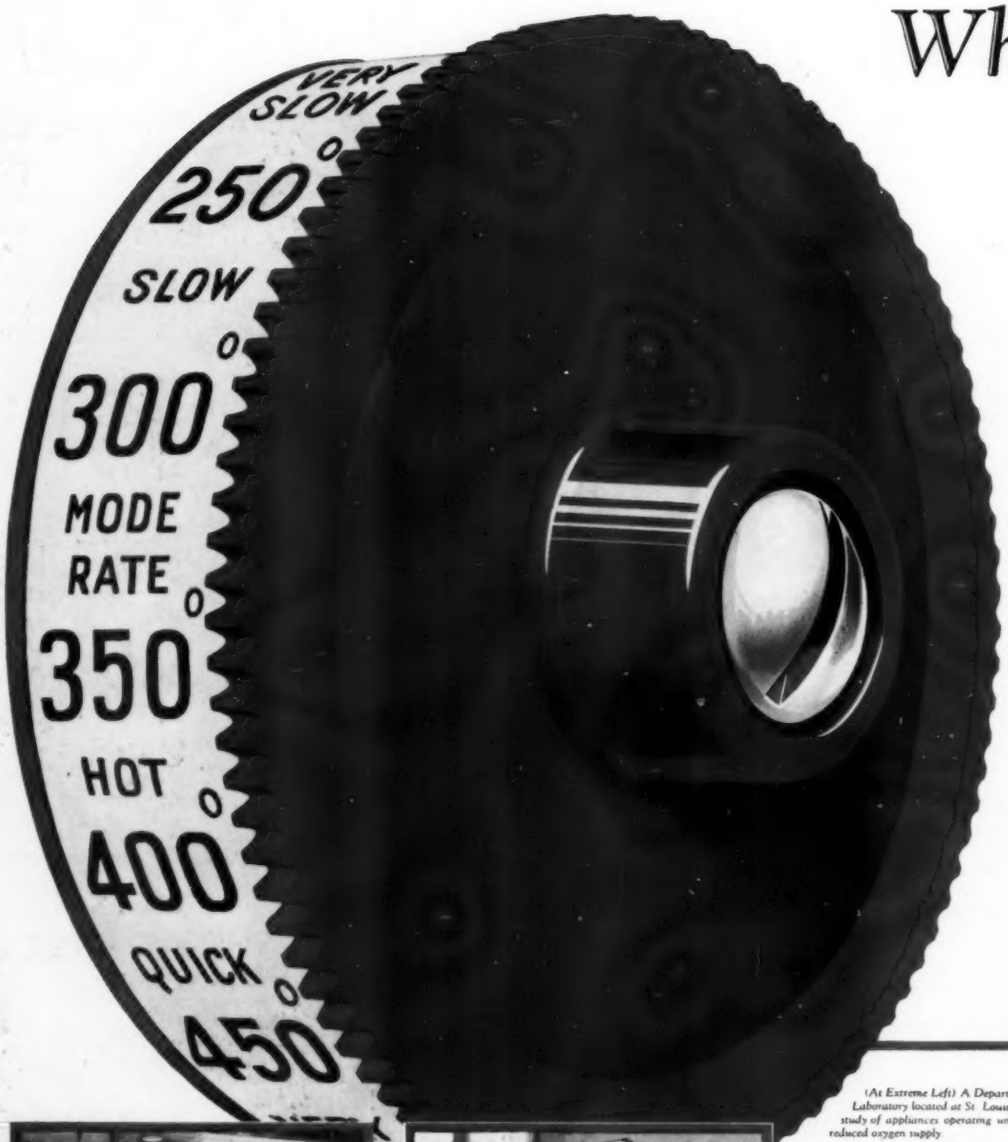
Nearly nine years of intensive national advertising have made *great* in the minds of millions the six famous brands of gas ranges that are equipped with Lorain, the pioneer Oven Heat Regulator.

This fact should weigh heavily with every seller of gas ranges when he considers his requirements for the coming season.

American Stove Company

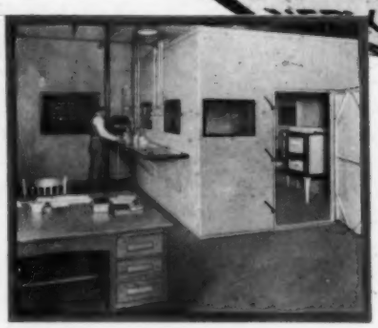
ST. LOUIS, MO.

What Do



No matter where you live you can now use a Lorain-equipped Gas Range

If Gas service is not available in your community we'll tell you how to obtain tank-gas service for use in a standard Lorain-equipped Gas Range.



(At Extreme Left) A Department in American Stove Company's Research Laboratory located at St. Louis, Mo. View shows air-tight chamber for the study of appliances operating under varying conditions of poor ventilation or reduced oxygen supply.

(At Near Left) Section of Research Kitchen of American Stove Company located at Cleveland, O., and operated under the direction of Miss Dorothy E. Shank, M.A., formerly Instructor of Food Research, Household Arts Department, Teachers College, Columbia University, New York City. Here Red Wheel Gas Ranges are given actual cooking tests, new recipes created and cookery problems solved.

Unless the Gas Range has a

RED WHEEL *It is Not a*

This advertisement will appea

the Saturd

You Know about the Red Wheel?

THE RED WHEEL is the identifying mark of the Lorain Oven Heat Regulator, an appliance found only on the six famous makes of gas ranges illustrated on this page.

Many have said that the Lorain is the greatest contribution ever made to the cause of woman's freedom from kitchen drudgery, from the ages-old task of faithful watching of food and fire.

If the Red Wheel *has* made hundreds of thousands of women happier, healthier, and therefore more attractive, American Stove Company feels fully rewarded for having been the *first* to give the world a device of this kind.

Great and many are the advantages that a Red Wheel Gas Range bestows upon its owner, by reason of its Magic Oven that never *can* get hotter or colder than the Temperature you select by an easy turn of the Red Wheel.

For instance:

The Red Wheel provides a way to eliminate *forever* all cooking failures due to too hot or too cold an oven. It will enable you to obtain *perfect* results the *first* time you try *any* recipe that gives exact Time and Temperature.

The Red Wheel does away with the necessity of sticking straws in cakes or knives in custards to learn if they are properly done. And, no more the need of continually peeking in the hot oven to see if foods are nicely browned.

The Red Wheel makes it possible to accomplish in the oven, in an easier way, many cooking operations that you now laboriously do on the top burners.

The Red Wheel provides a means for cooking Whole Meals in the oven *at one time* (soup, vegetables, roast and dessert). You can be miles away for as long as five hours while a delicious meal is cooking safely in the oven.

The Red Wheel offers a new canning method. Filled glass jars are simply placed in the oven for an hour or so at a given temperature. Then removed! Lids tightened! And, Presto! Your canning's done—successfully!

A Red Wheel Gas Range will add a new note of cleanliness, attractiveness and modernity to your kitchen—will give you years of satisfactory service and prove a true economy from the hour it's installed.

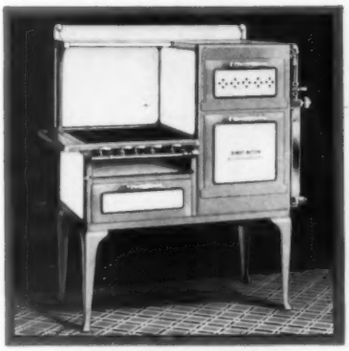
Red Wheel Gas Ranges represent the culmination of nearly a half-century of experience. American Stove Company, world's largest manufacturer of gas ranges, operates six great stove factories, two huge foundries and several modern enameling plants. In addition, the Company maintains what is considered one of the world's finest Research Laboratories—also an elaborately equipped Research Kitchen operated under the direction of a celebrated food authority.

Over 2100 schools use Red Wheel Gas Ranges to teach the art of cookery. The nation's leading food manufacturers employ them in their test-kitchens. And up-to-the-minute women *everywhere* use them.

Red Wheel Gas Ranges are sold by Gas Companies, Department Stores, Hardware, Furniture, and Stove Dealers. You'll find a wide range of sizes and styles to choose from. Most dealers will give you several months in which to pay, so confident are they that you'll be satisfied. Buy your gas range *now* and *insist* that it has the famous, *unconditionally guaranteed* Red Wheel.

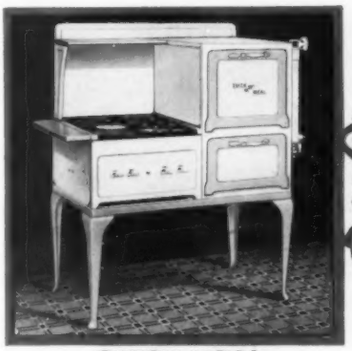
NEW PROCESS LORAIN

RELIABLE LORAIN



DIRECT ACTION LORAIN

CLARK JEWEL LORAIN



QUICK MEAL LORAIN

DANGLER LORAIN

AMERICAN STOVE COMPANY, 829 Chouteau Avenue, St. Louis, Mo.

Largest Makers of Gas Ranges in the World

LORAIN

AMERICAN STOVE COMPANY
829 Chouteau Ave., St. Louis, Mo.

Please send me free copy of your Recipe for Lorain Soufflés. (*Print* name and address plainly.)

Name _____

Street _____

City _____

State _____

the September 24, 1927 issue of
vening Post.

How to *Increase* Your Gas Range Profits

YOUR profit depends upon the number of sales you make. The number of sales you make depends upon the number of people whom you have the opportunity to sell. Therefore, if you do everything you can to bring people to your store you stand a greater chance of making a bigger profit.

A well-located store attracts people. So do low prices. Likewise, exceptional service. But—the greatest thing in the world to bring people to your place of business is a community-wide reputation for selling at reasonable prices merchandise *widely known* for its consistent high quality.

RED WHEEL GAS RANGES have a national—yes, a world-wide—reputation for high quality far beyond that possessed by any other brand of gas ranges. More than eight years of forceful and uninterrupted national sales and advertising-effort have built this enviable reputation for Red Wheel Gas Ranges.

Millions upon millions of full-page, two-color Red Wheel Gas Range advertisements are annually delivered into gas-using homes through the pages of America's leading national publications. Every year, thousands upon thousands of potential stove buyers are brought close to the point of purchasing Red Wheel Gas Ranges by means of this constant "advertising-solicitation-to-buy".

Only a little co-operative effort on your part is necessary to obtain a gratifying share of this ready-made, ready-to-buy Red Wheel market—a telephone call, a letter or two, a few newspaper advertisements, a ring of the door-bell.

National Advertising has already convinced women that Red Wheel Gas Ranges are *good* gas ranges, that American Stove Company is a mighty institution *long established*, that its business is honestly and honorably conducted, that it possesses tremendous physical and financial resources which insure high quality, fine workmanship, satisfactory performance of its product, and reasonable price.

Therefore, you merchants who are struggling to do the *entire* job of selling some little-known make should at least be sufficiently inquisitive to give Red Wheel Gas Ranges a trial, just to prove the claim that they will "Increase Your Gas Range Profits."

AMERICAN STOVE COMPANY

801 Chouteau Ave. :: St. Louis, Mo.

World's Largest Manufacturers of Gas Ranges

THESE FAMOUS GAS RANGES ARE EQUIPPED WITH LORAIN:

DIRECT ACTION	**NEW PROCESS**	**CLARK JEWEL**
DANGLER	**QUICK MEAL**	**RELIABLE**

9-27

carefully all the time and keeping after them until we close the sale or until we know definitely that it is no longer any use to keep after them."

And, no doubt, numerous other gas companies might adopt the same method with equally good results.

Soliciting Prospects Once a Year

Another system which produces very good results, indeed, in the way of increased gas range sales for various companies consists in seeing to it that every patron of the gas company who needs a new range is solicited to purchase such a range at least once during the course of the year.

In the case of smaller companies where it is possible for a salesman to call on all such customers personally such a plan of personal calls is followed. But where the company is large and has many customers who should buy gas ranges, the plan is followed of soliciting the business of such customers by means of direct mail advertising. Generally such advertising is enclosed with the customers' bills. Each month such advertising is sent to a twelfth of the company's customers. Coupons are often attached to the advertising which, when signed by the recipients, entitle them to free demonstrations or something of that sort.

This direct mail advertising brings back a fairly regular number of inquiries each month and then a salesman is sent out to make a personal call on each of these inquirers. In this way a very considerable of new and worth while range business is secured by the companies.

This same plan might be followed with equally good results by other live wire customers.

Another system which is of great help in selling ranges consists in setting up a quota each month of calls that are to be made for the purpose of selling ranges. This is of particular help where the salesman in charge of gas range sales also has other duties to perform. When he has a certain definite quota of calls to make each month in the effort to sell ranges he is much more likely to make that number of calls than is the case when there is no such quota and when his other duties keep him so busy that he feels he must let the gas range promotional work slide.

Selling gas ranges is most successfully accomplished, it is found, when it is pursued on a definite, systematic plan, rather than in any haphazard, slipshod manner.

SPECIAL SALE OF WATER HEATER

By J. B. Dillon

The Public Service Company of Colorado has conducted many special sales of the Lion Water Heater, gas fired, and in every instance the sale has been maintained for quite a long time. Now this is changed. On July 26 the sale was advertised and a warning sounded that the special price would only be good up to and including August 1. The motive is plain. Folks want these gas fired water heaters, but continue to procrastinate to the expense of the dealer, but now they can either take it at the special price, and take it quick, or pay the regular price, about $8 more if they permit the special sale period to expire.

A little thought will convince us that special sales should not be carried more than a week unless, of course, the demand is so great that we cannot cope with it in that short time.

Here is the advertisement used:

only a few days left!
TO INSTALL THE
LION
WATER HEATER
for 95¢
AUGUST FIRST
Better hurry! Only a few more days of this record breaking sale. Hundreds of thrifty housewives have already grasped the opportunity to buy this world famous heater value at the special sale price. It is the talk of the town. Orders are pouring in. Just a few more days of fast selling. Get busy and place your order now—TODAY—before it is too late. Call, write or 'phone, but do it now.
Special Sale Price $21.95
Usual Connections Free
Small Monthly Payments
The Lion Heater is the best tank heater built. Sturdy, simple construction throughout. Built to get the most out of your gas—costs only a few cents a day to operate. Saves you time, toil and money. Know the luxury of ready hot water in your own home at all times—and plenty of it! Get a Lion—NOW at the lowest price and on the most liberal terms.
Public Service Company of Colorado

VALUE OF UTILITY ADVERTISING

It was not so many years ago that utility companies felt that advertising was for them a useless expenditure; they were, and are, in the communities served by them, essentially monopolies. As monopolies they were free from direct competition in the ordinarily accepted conception of the term. Since the public must needs come to the utility for service and since the same service could be obtained nowhere else, where was the need of wasting good money in telling the public what everybody knew?

Utilities failed to take into consideration, however, the fact that not everybody knew why it is to the interest of the public that the utility be a monopoly, why competition means a duplication of capital fixed charges and a duplication of operating expense, all of which the public must pay. The public did not know that a regulated utility operat-

ing with restrictions as to earnings meant lessened costs to the consumer of its product.

There is latent in every American citizen a feeling of resentment at not being allowed to pick and choose as to where he shall bestow his patronage. Utilities found that this feeling was being fanned into flame by political demagogues and socialistic soap box orators, often for the purpose of setting up a false issue to conceal their real purpose.

In self-defense the utility was compelled to tell its story. To the astonishment, perhaps, of many of the operators, its story was read, and by degrees the effect of its message began to be felt in lessened operating costs, through elimination of wasteful friction, needless and expensive rate cases, and costly disputes. An internal reaction within the utility itself became noticeable in increased pride on the part of its personnel in their business—a broader appreciation of their duties to the public.—From an address by J. F. Owens to the International Advertising Association Convention.

IDEA THAT GAS IS BEING USED LESS PROVED ALL WRONG

No decrease in the annual sales or annual gross revenue of the manufactured gas industry of the United States has occurred in the past twenty years, according to a report just made public by the American Gas Association.

It was about twenty years ago that the industry began to develop the domestic cooking and industrial heating markets, says the report, and since that time the sales of gas have grown regularly and continually.

Last year not only established a new high record of 459 billion cubic feet of manufactured gas sold, but marked the greatest yearly increase in sales in the history of the business, in spite of the fact that 1925 had been a record year with total sales of 421 billion cubic feet.

New York continues to lead all other states in the distribution and use of manufactured gas, and in 1926 set up a total of more than 110 billion cubic feet, or nearly one-fourth of the country's total. There are in service in the Empire State more than two and three-quarter million gas meters, of which approximately 80 per cent are in homes. It is estimated that gas service is now available to 90 per cent of the population in the state, while in all towns of ten thousand or more 95 per cent of all homes use gas.

THE OBJECT OF AN INDUSTRIAL RELATIONS PROGRAM

By William Loeb
Vice-President of the American Smelting and Mining Company

"There is a decided trend toward fuller co-operation between management and employees and an honest endeavor being made in many directions to earnestly grapple with problems growing out of operations and employment, with their interlocking though often seeming contradictions of interest, in the hope and belief that mutual understanding and respect for rights and duties of each other will go far to remove friction."

"Any representation that savors of a gift must be repellent and will inevitably lead to failure. A plan set to paper and depending upon the niceties and subtleties of verbiage and not upon the spirit of the understanding itself, cannot endure. Employee representation does not depend primarily for its success upon the scope of the understanding between employer and employee, but it is vital that, having entered into it, each must be honest and frank with the other to the full extent of their agreement. A representation or relation with a string attachment that may be used to tighten here or loosen there, or to distort in some other direction to the disadvantage of one as against the other, can never accomplish anything."

"The esprit de corps of any industry must always be one of its most valuable assets, and to create and maintain this calls for character that radiates understanding, justice, sympathy, a wise discipline and a cheerful observance of it, and an integrity in all things. The spirit is not and cannot be the possession of one man alone, but must be entered into and shared by the entire personnel."—Mining Congress Journal.

IDEAS FOR THE MAN WHO SELLS

To refrigeration salesmen: Remember, refrigerators should be seen but not heard—sell 'em a gas refrigerator.

Appliance salesmen should strike to sell themselves to their customers by establishing confidence in their honesty, earnestness and energy. The customers' continued patronage will well repay you.

All good salesmen know the importance of a clean shave, a shine, the care of teeth, neat clothes, in selling self and merchandise. "The skin you love to touch" applies to gas appliance salesmen as well as to school girls.

Display Floor, Boston Consolidated Gas Co.

stet . . (of all things) . . by w. h. Emm

Fall with its rainy season is the time to put pressure and push behind the sale of home laundry equipment. No matter what day is delegated to the home laundry six times out of eight that day will be a rainy, damp one; a day that will necessitate drying the clothes indoors. This knowledge provides a mighty fine reason for the home manager to purchase a home laundry dryer; aside from this there is the gas fired washer, the laundry stove and water heater. All of these fit into the home laundry scheme, to say nothing of the gas heated ironer. Each of these appliances are low consumers of gas, yet each is a valuable aid to the home manager and a help to the gas man in building up and maintaining the domestic load. The more appliances there are in the home serving the home manager the less likely she is to complain of "high gas bills." The Laclede Gas Light Company maintain a complete exhibit of home laundry equipment throughout the year and at all times have the appliances in action in order to acquaint the visitors to their store with the ease with which home laundry problems may be solved at home. Other mid-western companies have told the writer that by featuring laundry equipment in their newspaper advertisements and by maintaining an exhibit on the floor at all times that they have a steady and profitable sale of such appliances throughout the year.

"Bob" Anderson has struck a happy note in advertising "Autohot" gas water heaters. In St. Louis "Bob" has been the water heater man for twenty years and whenever folks graduate from the tank water to the self action age they ask the telephone operator for Garfield one-five-two-one.

This Is "Bob" Anderson
For over twenty years "Bob" Anderson has been selling
RUUD Water Heaters
in St. Louis. During that time he has seen many heaters come on the market with a blare of trumpets and soon fade into oblivion . . . they didn't "stand up." And with each year the popularity of the old, reliable RUUD grew greater. The RUUDS sold years ago are still giving their owners satisfactory, economical service. People who own a RUUD will tell you . . . "If you need a water heater, buy a RUUD and be satisfied."
. . . . and THIS Is
The new
RUUD built AUTOHOT
$ 95.00
Meets the Small Home Need for a Low Cost Water Heater
On washday or cleaning day, first thing in the morning or in the middle of the night, AUTOHOT will supply you, whole family with all the hot water it wants for every purpose, just by turning the faucet.
Neither metal cost nor upkeep nor bothers, as give your home this sensible convenience. Call and see AUTOHOT—and come soon.
Terms to Suit You
Value Beyond Comparison
AUTOHOT is made with the standard RUUD Moment-Valve, the standard RUUD Automatic Gas Cut-Off and other RUUD quality features—it's good-value throughout. All mechanism is in front, easily accessible. Only 18 inches of floor space is needed.
At $95 AUTOHOT offers more for your money than any other water heater at or near the price.
Anderson & Gourley
Distributors
1112 Locust St.

Fall calls for hot cakes, hot cakes call for griddles and waffle irons, which in turn call for an increased gas consumption.

With the advent of cool weather the youngsters' as well as the older folks' appetites show a decided craving for hot, substantial food, particularly for breakfast. Waffles and hot cakes are well included in such a gastronomic category.

September is an ideal time to campaign either or both of the above mentioned appliances.

Let the home service department conduct a cake and waffle demonstration in the main display window—that is the way the chain restaurant folks sell cakes, and that is the way several gas companies sell griddles and waffle irons. An Illinois company in conducting a waffle iron campaign last fall gave away tested waffle recipes to all who visited their store during the week in which they were staging their drive, with the result that many people bought waffle irons—"right now."

Plenty of white space and "All Next Winter on One Match" reaches out of a recent advertisement on house heating used by the Laclede Gas Company and causes folks to read, and reading want to know more about converting their basements into a playroom by installing a gas-fired furnace. This advertisement contains a coupon for the use of those interested—we wonder if coupons are productive in the large cities? Somehow in the smaller cities they are sidestepped.

All Next Winter on One Match
THAT'S all the kindling you'll need when you heat with gas · · · Just light the gas furnace · · · your furnace tending is done for the winter.
There is no coal to shovel; no ashes to be a perpetual bother · · · No vapors or odors; no coal, dust or soot.
Temperatures are automatically adjusted · · · The heat goes down at night when you retire and rises in the early morning before you get up · · · A warm comfortable home even on the coldest mornings is one of the luxuries gas heating provides.
No worry about fuels and strikes · · · Gas is piped into your home and is always ready for instant use.
A gas heating plant in your basement offers relief from all heating difficulties · · · Just mail the coupon for a booklet telling more about the advantages of gas house heating.
Install Now · · · First Payment in October
COUPON
The Laclede Gas Light Co.
Olive at Eleventh
St. Louis, Mo.
Please send me a free booklet on gas house heating.
Name
Address
The LACLEDE
Gas Light Company
OLIVE AT ELEVENTH

FINANCIAL NEWS

DIVIDENDS DECLARED

Company	Rate	When Payable	
American Power & Light, common (quar.)	25c	Sep.	1
Associated Gas & Elec. original preferred (quar.)	87½c	Oct.	1
Associated Gas & Elec. $7 preferred (quar.)	$1.75	Oct.	1
Associated Gas & Elec. class A (quar.)	50c	Nov.	1
Brooklyn Union Gas (quar.)	$1.25	Oct.	1
Central Gas & Elec. preferred (quar.)	$1.75	Sep.	1
Central Illinois Public Service, preferred (quar.)	1½	Oct.	15
Cities Ser. Pr. & Lt. 7% preferred (monthly)	58 1/3c	Aug.	15
Consolidated Gas, Elec. Lt. & Pr. (Balt.) com. (quar.)	62½c	Oct.	1
Cons. Gas, Elec. Lt. & Pr. (Balt.) pref. series A (quar.)	2	Oct.	1
Cons. Gas, Elec. Lt. & Pr. (Balt.) pref. series B (quar.)	1¾	Oct.	1
Cons. Gas, Elec. Lt. & Pr. (Balt.) pref. series C (quar.)	1⅝	Oct.	1
Cons. Gas, Elec. Lt. & Pr. (Balt.) pref. series D (quar.)	1½	Oct.	1
Consolidated Gas (N. Y.) common (quar.)	$1.25	Sep.	15
Consumers Power 6% preferred (quar.)	1½	Oct.	1
Consumers Power 6.6% preferred (quar.)	1.65	Oct.	1
Consumers Power 7% preferred (quar.)	1¾	Oct.	1
Consumers Power 6% preferred (monthly)	50c	Aug.	1
Consumers Power 6% preferred (monthly)	50c	Sep.	1
Consumers Power 6% preferred (monthly)	50c	Oct.	1
Consumers Power 6.6% preferred (monthly)	55c	Aug.	1
Consumers Power 6.6% preferred (monthly)	55c	Sep.	1
Consumers Power 6.6% preferred (monthly)	55c	Oct.	1
Duquesne Light, 1st preferred (quar.)	1¾	Sep.	15
Empire Gas & Fuel 8% preferred (monthly)	66 2/3c	Sep.	1
Empire Gas & Fuel 7% preferred (monthly)	58 1/3c	Sep.	1
General Gas & Elec. common class A (quar.)	37½c	Oct.	1
General Gas & Elec. $8 preferred class A (quar.)	$2.00	Oct.	1
General Gas & Elec. $7 preferred class A (quar.)	$1.75	Oct.	1
General Gas & Elec. preferred class B (quar.)	$1.75	Oct.	1
Laclede Gas & Elec. prior line stock (quar.)	1¾	Sep.	1
Laclede Gas & Elec. preferred (quar.)	1¾	Oct.	1
Laclede Gas Light, common (quar.)	3	Sep.	15
Louisville Gas & Elec. (Del.) A & B (quar.)	43¾c	Sep.	24
Middle West Utilities, prior line (quar.)	2	Sep.	15
Northern Liberties Gas Co. (quar.)	$1.00	Sep.	12
Northwestern Public Service preferred (quar.)	1¾	Sep.	1
Ohio Public Service 6% 1st preferred (monthly)	50c	Aug.	1
Ohio Public Service Class A 1st preferred (monthly)	58 1/3c	Sep.	1
Ohio Public Ser. Class A 1st pfd. 6% (monthly)	50c	Sep.	1
Oklahoma Gas & Elec. Co. pfd. (quar.)	1¾	Sep.	15
Pennsylvania Gas & Elec. Class A (quar.)	37½c	Sep.	1
Pennsylvania Gas & Elec. Class A extra	3¾c	Sep.	1
Pennsylvania Gas & Elec. pfd. (quar.)	1¾	Oct.	1
Pennsylvania Gas & Elec. com. (quar.)	2	Oct.	1
Public Service Corp. of N. J. com. (quar.)	50c	Sep.	30
Public Service Corp. of N. J. 8% pfd. (quar.)	2	Sep.	30
Public Service Corp. of N. J. 7% pfd. (quar.)	1¾	Sep.	30
Public Service Corp. of N. J. 6% pfd. (monthly)	50c	Sep.	30
Public Service Corp. of N. J. 6% pfd. (monthly)	50c	Aug.	31
Public Ser. Elec. & Gas 7% pfd. (quar.)	1¾	Sep.	30
Public Ser. Elec. & Gas 6% pfd. (quar.)	1½	Sep.	30
Rochester Gas & Elec. 7% B pfd. (quar.)	1¾	Sep.	1
Rochester Gas & Elec. 6% pfd. series C & D (quar.)	1½	Sep.	1
Southern California Gas new common	75c	Aug.	15
Southern Cities Utilities prior lien (quar.)	$1.50	Sep.	1
Standard Gas & Elec. 8% pfd. (quar.)	$1.00	Sep.	15
Utah Gas & Coke pfd. & participating pfd. (quar.)	$1.75	Oct.	1
Utilities Power & Light, class A (quar.)	50c	Oct.	1
Utilities Power & Light, class B (quar.)	25c	Oct.	1
Utilities Power & Light pfd. (quar.)	1¾	Oct.	1
Washington Gas Light (quar.)	90c	Aug.	1
Wisconsin Public Service pfd. A (quar.)	1¾	Sep.	20
Wisconsin Public Service pfd. B (quar.)	1⅝	Sep.	20

Gas Companies' Earnings

American Gas & Electric—Gross earnings were $74,872,891 and surplus after preferred dividends was $12,213,-670 for year ending June 30, 1927, as against gross of $69,363,343, and surplus of $8,727,302 in 1926.

American Light & Traction Co.—For 12 months ended June 30, 1927, gross earnings were $7,735,675 and net income was $7,097,738, compared with gross of $8,132,064 and net of $7,682,-049 in preceding year.

Associated Gas & Electric Co.—Gross earnings for 12 months ended June 30, 1927, were $32,376,230 and surplus $1,504,209 as against gross of $26,848,635 and surplus of $1,442,721 in 1926.

Blackstone Valley Gas & Electric—For 12 months ended July 31, 1927, gross earnings were $5,748,455 and balance after charges were $1,429,430 as against gross of $5,317,640 and balance of $1,440,636 for same period preceding.

Central Illinois Light—For year ending July 31, 1927, gross earnings were $4,347,086 and balance after depreciation and preferred dividends were $621,084 as against gross of $4,080,706 and balance of $503,819 in 1926.

Central & South West Utilities Co.—For 12 months ended June 30, 1927, gross earnings of $26,579,430 and net profit of $11,324,814.

Cities Service Co.—For 12 months ended July 31, 1927, gross income was $30,078,734 and net income for common stock and reserves was $19,736,193, as against gross of $21,883,727 and net of $12,726,974 in 1926.

Columbia Gas & Electric Corp.—Reports for year ended June 30, 1927, gross income of $96,058,586 and net of $32,772,870 after expenses, taxes, renewals, replacements and depletion.

Consumers Power—For year ending July 31, 1927, shows gross of $25,764,-691 and balance after preferred dividends of $5,222,632 as against gross of $22,703,439 and balance of $4,076,732 for preceding year.

Duquesne Light Co.—For twelve months ended June 30, 1927, reports gross of $24,990,559 and net of $13,-252,944 as against gross of $23,425,525 and net of $11,880,844 in 1926.

Federal Light & Traction and subsidiaries—Report for 12 months ended June 30, 1927, gross of $6,845,123 and net of $1,688,667 after taxes, interest on subsidiary preferred dividends compared with gross of $6,228,753 and net of $1,407,940 in previous 12 months.

General Gas & Electric Corp. and subsidiaries—Report for 12 months ended July 31, 1927, consolidated operating revenue of $25,717,759 and net income after providing for depreciation, taxes, rentals and other charges of $2,990,248, net income in previous 12 months was $2,537,947.

Houston Gulf Gas Co.—Reports for first eleven months of its operation as follows (July 1, 1926—May 1, 1927):

Gross revenues 11 months..$3,063,040
Net revenues from operations 1,920,443

Illinois Power & Light Corp.—Reports for 12 months ended June 30, 1927, gross of $32,174,970 and balance after depreciation of $11,638,282 as compared with gross of $30,664,907 and net of $10,663,299 in preceding 12 months.

Inland Power & Light and subsidiaries—Report for 12 months ended May 31, 1927, gross of $4,158,561 and net $1,966,168 against gross of $3,961,017 and net of $1,858,450 in preceding 12 months.

Interstate Public Service Company for 12 months ended June 30, 1927, shows gross of $9,937,146 and net of $1,641,665.

Los Angeles Gas & Electric—Statement for 12 months ended July 31, 1927, shows gross of $20,679,371 and balance after taxes, charges and depreciation of $4,630,822 as against gross of $16,993,837 and net of $2,548,876 in preceding 12 months.

Louisville Gas & Electric—Reports for 12 months ended June 30, 1927, gross of $8,637,461 and net after taxes and depreciation of $4,415,382 as against gross of $8,431,689 and net of $4,417,730 in preceding 12 months.

Middle West Utilities and subsidiaries—Report for 12 months ended June 30, 1927, gross of $91,365,742 and net of $41,768,249 as against gross of $89,648,819 and net of $39,835,362 in preceding 12 months.

National Power & Light Co.—Reports for the year ended June 30, 1927, gross earnings of $6,349,363 and net of $5,641,622 as against gross of $5,149,057 and net of $4,420,991 in preceding 12 months.

New York & Richmond Gas Co.—Reports for calendar year of 1926, operating revenue of $1,215,832 and net of $224,955 as against operating revenue of $1,071,093 and net of $178,252 in 1925.

The Northwest Utilities Company and subsidiaries—Report for year ended June 30, 1927, gross of $10,345,300 and net of $3,648,428.

Oklahoma Gas & Electric Co.—Reports for 12 months ended May 31, 1927, gross earnings of $12,145,777 and net of $4,626,296 as against gross of $10,718,408 and net of $3,837,379.

Peoples Light & Power—Consolidated report for year ended June 30, 1927, shows gross of $3,632,410 compared with $3,481,574 in preceding 12 months; net income was $1,542,714 as against $1,366,316.

Portland Gas & Coke—Reports for 12 months ended June 30, 1927, gross of $4,434,789 and balance after preferred dividends of $527,079 as against gross of $4,095,304 and balance of $489,038 in preceding 12 months.

Public Service of New Jersey and subsidiaries—Reports for 12 months ended June 30, 1927, gross of $110,427,255 and surplus after charges of $12,775,710 as against gross of $100,983,856 and surplus of $12,791,677 in preceding 12 months.

Standard Gas & Electric and subsidiaries—Report for 12 months ended June 30, 1927, gross revenue of $142,675,162 and gross income after taxes but before depreciation, of $62,174,000 as against gross revenue of $137,010,702 and gross income of $59,004,738 in preceding 12 months.

Southern Gas Co.—Reports for the year to June 30, 1927, gross income of $1,060,505 and net earnings of $616,254 after expenses, maintenance and local taxes.

Southern Indiana Gas & Electric—Reports for year to July 31, 1927, gross of $3,003,530 and balance after depreciation and preferred dividends of $341,994 as against gross of $2,808,579 and balance of $266,347 in preceding 12 months.

Southwestern Gas & Electric—Reports for 12 months ended June 30, 1927, gross of $5,048,380 and net profits after taxes, interest and retirement provisions of $1,073,006.

United Light & Power—Reports for 12 months to June 30, 1927, gross of $41,537,328 and surplus of $6,988,283 as against gross of $38,228,064 and surplus of $7,619,099.

Utilities Power & Light—Statement for 12 months ended June 30, 1927, shows profit of $2,867,217 after interest, subsidiary preferred dividends, depreciation, federal taxes, etc., comparing with $2,116,387 in previous 12 months.

Wisconsin Gas & Electric Co.—Reports for 12 months ended June 30, 1927, gross of $5,421,929 and balance of $736,877 as against gross of $5,259,016 and balance of $730,589 for preceding 12 months.

Capital Flotations of Gas Companies During August, 1927

Company and Issue	Purpose of Issue	Price	Per Cent to Yield About	Amount
American Utilities Company 1st Lien and Refunding Gold Bonds, Series A 6%. Redeemable on 30 days notice.	Acquisition and Corporate Purpose			
Atlantic City (N. J.) Gas Co. 1st Lien and Refunding mortgage gold bonds 5% series, due 1957.	Improvements	98	5.13	$800,000
Commonwealth Power Corporation. 6% cumulative Preferred stock.	Retire Funded Debt	100	6	13,208,200
Federal Public Utilities Co. 1st Lien Collateral 6% Sinking Fund Gold Bonds, Series A.	Acquisition and Corporate Purposes	99	6.12	3,750,000
Great Lakes Utilities Corporation. Gold Debentures 6% Convertible Series. Due 1937.	Corporate Purposes	97	6.40	1,275,000
Iowa-Nebraska Light & Power Co. 1st Lien and Refunding Mortgage 5% Gold Bonds, Series A.	Corporate Purposes	96½	5.20	12,000,000
New England Gas & Electric Association. 5% Convertible Gold Debenture Bonds.	Refunding and Corporate Purposes	99	5.08	17,000,000
Oklahoma Northern Gas Co. Gold debentures 7% Series. Due 1934.	Corporate Purposes	100	7.00	600,000
Public Service Company of Northern Illinois. 5% Debentures. Series of 1927.	Improvements	99	5.20	10,000,000
Southern Kansas Gas Co. 1st Mortgage 6½% Sinking Fund Gold Bonds.	Corporate Purposes	98½	6.70	2,500,000
Southwestern Power & Light Co. 1st Lien 5% Gold Bonds.	Corporate Purposes	99	5.10	3,000,000
Wilmington (Del.) Gas Co. 1st Lien and Refunding Mortgage Gold Bonds, 5% Series.	Improvements	98	5.13	400,000

The Industrial Survey

By A. Gordon King

The gas industry is being actively urged by rate students and statisticians to segregate gas sales. Recent figures indicate that nearly thirty per cent of all manufactured gas sold is utilized for commercial and industrial purposes. This ever increasing proportion is a significant trend of vital importance to the industry at large and the smaller companies in particular. We know of one small gas company with twenty industrial customers, secured without sales work or other solicitation, whose combined purchase of industrial gas represents ten per cent of the annual sales of gas to the whole city. The larger gas companies and the appliance manufacturers make surveys to sell additional gas and gas burning equipment—why not the smaller companies? The author points the way for the smaller companies to secure more of this attractive and remunerative business.—EDITOR.

A MARKED tendency today is for the larger industries to seek the more remote towns where living conditions and the wages of labor are more desirable than in the large cities. This trend should prove of the greatest interest to the gas companies and it should not be impossible to develop some situations to the point where the proportion of industrial gas sales is relatively far greater than in larger and apparently more favorably situated gas companies.

Galvanizing is One of the Gas Man's Best Industrial Prospects

Most large gas companies, and many industrial appliance manufacturers, have found from experience that additional gas sales can be secured by means of the survey, and that in the absence of the information such an investigation will develop there will always remain many prospective customers within the territory of supply that would never otherwise be unearthed.

In many of the relatively smaller communities throughout the country innumerable prospective industrial gas users are to be found, the acquisition of which would add a most gratifying load to the gas company's plant and distribution system.

Don't Forget the Baker—He is Interested in the Clean and Dustless Shop

There is no reason why the gas man in these smaller communities should not secure much of this business by his own unaided efforts.

Preliminary Step

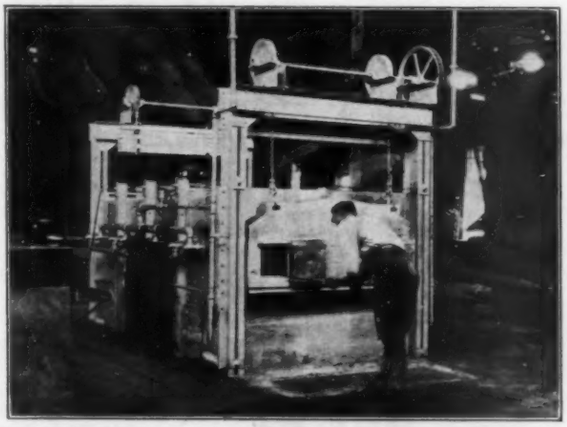
In the first place, the industrial survey should be considered only as a preliminary step toward increasing the industrial load, and it is a question as to whether the industrial rate should be prepared in advance of a survey, and be available to the engineers undertaking this work for securing such business as they may come across, or whether the rate should be prepared after the survey has been completed.

In the majority of cases the second proposition is the better, and for the following reason—with the exception of certain specific uses of gas, where costs are not inherently the controlling factor, industrial gas can and will be sold with relative ease. Examples of such utilization are the melting of soft metal in newspaper offices in stereotype and linotype pots, raising of steam in gas fired steam boilers in loft buildings, etc. But in practically all other cases gas can only be sold for strictly industrial purposes in straight competition with other fuels. At present these fuels are oil, coal and electricity, and the only means by which gas can be sold in the face of this competition is to meet as nearly as possible present operating costs with existing fuels.

There will of course be many gas fired installations, now attached to the lines, which must be revised and brought up to date, and by means of which greater economy of gas utilization will be realized and reduced gas bills rendered to the customer. In the majority of cases where these conditions prevail further and additional use of gas will ultimately follow.

What Survey Will Show

For these reasons the survey will primarily indicate where the business is, and a detailed survey will result in the surveyor figuratively putting on his overalls, taking his notebook, rule and slide rule, and literally "camping" on the job for quite some time. At the conclusion of the field work there will be available detailed data from which conclusions can be drawn, and which few, if any, prospective customers know themselves. In addition, the study will develop the actual cost of the fuel used, the cost of labor, storage space required, removal of ashes in the case of solid fuels, and tankage problems and the like in the case of liquid fuels.



A Typical Application of Gas to Furnace Firing

The net result will be that the actual cost to the customer of each unit heat-treated or heat-processed can be determined. From this, or a multitude of such instances, the rate maker can build a rate that will take into consideration not only the load factor of the prospective business, and other pertinent facts of interest to the plant and distribution departments, but principally a rate which in its net result recognizes costs and the other competitive features of the fuels which gas seeks to replace. The means for making the survey are many, and the first that comes to mind is a plant-to-plant visit in town wherever heat is used. The telephone classified directory, city directory, advertisements in local newspapers, the knowledge and invaluable personal contact obtained through civic clubs and local chambers of commerce are all fair means to the end of determination where the prospective consumers are. When such a preliminary investigation has been undertaken there will clearly stand out those processes and operations which can be most readily converted or secured for gas utilization. A typical and recent illustration of this was an installation, electrically heated, of an oven for "drawing" large knife blades. The temperature required was relatively very low, and it was essentially a job for which gas should have been sold. Unfortunately, however, the company serving the territory in question had an archaic rate structure and no industrial engineers; such a situation should never be allowed to develop in any well-regulated gas company territory.

Gas—the Logical Fuel

The point of this illustration is that soft metal melting for newspapers, babbit melting for bearings, heat treatment of tools, dies and small parts in the machine shops, tempering and drawing operations and the like, are logical applications for gas fuel and should never be permitted to get away from its use. This reference has to do with new business, and in particular with that which is most easily secured. There are many other applications that, at first glance, are being efficiently and well done with other fuels, but where, upon careful survey and striking a balance, gas can often be sold.

There is another side to industrial gas utilization which is often overlooked and undervalued by many gas men, and that is looking after the present attached industrial customers. Industrial gas sales have never been secured easily, although much of it, it is true, has been secured almost in spite of many local gas companies. Industrial sales cannot, however, be retained, and service satisfactory to the customer furnished, unless regular and systematic inspection and service work are undertaken.

It is in just such instances where the competitor comes in and very fairly replaces an inefficient, unsatisfactory, out-of-date gas appliance with the most modern equipment he can obtain, and with appropriate thermostatic control. Systematic survey work and inspection, together with willing and satisfactory service work, should never have permitted the continuance of such obsolete equipment in service on the gas lines in the first place.

First Approach

In making the first approach it is easy to secure entree to the respective plants if the inspector or surveyor is tactful, and enters with a story which in effect is as follows—he is making an investigation of all the industries in town; his purpose at present is not to sell anything, but to learn where gas might be used in the territory served by the local gas company. If such prospective business is developed it is the intention of the gas company, with the permission of the operator or executive to whom the talk is being made, to "sit" on the job a few days, learn present fuel costs, and go back to the office and figure out what can be done. There is no obligation, implied or otherwise, and the gas company will frankly say whether or not they can show the prospective user anything that is interesting. This is one almost infallible method of getting a hearing and inspecting the plant. It frequently results in permission to make a change or a conversion, head off

the adoption of other fuels, and in many cases direct sales can be made.

An excellent start is with the consumers' ledger, because if the average consumption for domestic purposes is segregated, then all bills in excess of the average are obviously either large domestic users, or commercial and industrial installations. As such they should be visited regularly, additional business looked for, old equipment scrapped, existing good equipment tested and adjusted, the customer interviewed and a record made for future use.

On relatively small gas properties is generally to be found a very keen and loyal operator, and possessing a complete knowledge of combustion, in so far as plant operation is concerned, whether coal gas or carburetted water gas is being manufactured. This same individual is generally a member of at least one civic club, and other members of his organization represent the company in other clubs. Between them, together with their local personal knowledge of the city, in which most of them have grown up, is grouped an invaluable entree to plants, and knowledge of local affairs.

These men can well be responsible for much additional large-scale commercial and industrial work, and in some cases suitable financial recognition, by means of bonuses or otherwise, might be considered. Much of this utilization can be undertaken with stock appliances, and if good records are kept, up-to-date figures maintained, and a proper approach made to the prospective users, many additional sales can be made. Where a special job is encountered, requiring expert service, there are organizations or consultants specializing in industrial gas, who can be retained to make the immediate survey and recommend or design the necessary equipment.

Engineering Personnel

In a holding company, and in addition to other salesmen, especially where there are relatively small plants, at least two men should be maintained as part of the engineering personnel. One should be a competent industrial engineer with sufficient knowledge of his own industry and others, and able to meet the heads of all prospective businesses, make occasional addresses or speeches at group meetings, civic clubs and before other associations. Such a man should be able to finally "sell" the prospect on industrial gas and provide the necessary equipment, or supervise appliances that may have been purchased elsewhere. The other should be a man of the type of first-class fitter or inspector—a man who will put on his overalls, take his tools and "camp" on a job to see that perfect service is rendered for industrial utilization. With newspapers, restaurants, hospitals and other like applications, such service is essential. This man could be made available to all the properties, and make periodic service investigations of all connected industrial customers.

Study of Survey Cost

As to the cost of this work a study should develop probable figures as to the quantity of gas that might be secured provided a suitable rate were made effective, proper advertising and publicity carried out, and estimated at say, one hundred per cent of the prospective business. This will then be qualified to whatever business it is thought can be obtained within one or two years. Then by consideration of properly allocated accounts the economics and wisdom of the necessary operating cost of two such men could, with their travelling expenses, advertising, service work, etc., be determined, and their cost at say, per thousand feet of gas sales spread over all the properties, be considered.

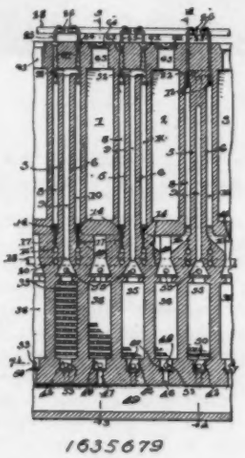
In this connection it should be remembered that industrial gas is not sold by walking into a plant and coming out with a signed order. Frequently it must be "sold" to the highest executive down through the line; in other cases it may have to start with the lowest and on up to the president. This may take time—days, sometimes years—but when the business has been secured it has been well worth all the trouble and expense. But mark well, when such business is secured it is not unlike a championship belt won in the ring—there will spring up a multitude of younger and aggressive contenders seeking to wrest it from your grasp. Only by attractive modern rates, the best of service and continuous servicing, can the gas industry continue to maintain its preferred position and hold the championship belt.

A Warm Welcome for Your Guests
A gas steam radiator is particularly adapted for use in your hall or entry and makes it comfortably warm.
Colder days are coming. Prepare for them now. This radiator may be used in connection with your present heating system. It is exhibited at your Gas Office.
Mail This Coupon Today
The Brooklyn Union Gas Company, New Business Department, 180 Remsen Street, Brooklyn, New York.
Without obligation, please furnish full particulars regarding gas steam radiators.
Name
Street
City State
Telephone: TRIangle 7500
The Brooklyn Union Gas Company
Prepare Now for House Heating

Patents of Interest to the Gas Industry

Coke Oven Construction

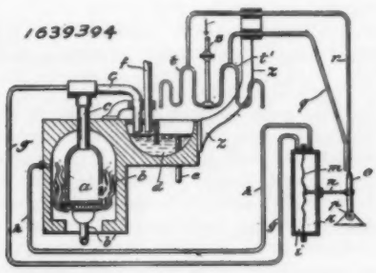
The coke oven which is patented in U. S. Patent No. 1,635,679 and which is shown in part in the accompanying illustration, consists of a number of parallel coking chambers and combustion chambers which are formed in the walls between the coking chambers shown at 1, 2, 3, etc. The regenerators are located



below the coking chambers and are parallel to them, shown at 38. Flues are provided for connecting alternate regenerators with the bottoms of the coking chambers and there are also flues connecting intermediate regenerators with the tops of the combustion chambers. Burners are located both in the top and the bottom of the combustion chambers and means are provided for feeding gas to them. (Issued July 12, 1927, to Thomas G. Kus, Evanston, Ill., assignor, American Coke & Chemical Co., Chicago.)

Retort and Gas Flow Regulating Apparatus

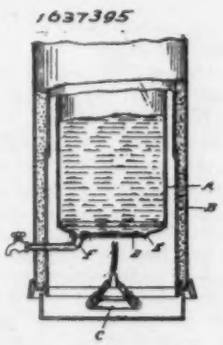
The illustration shows a retort a which is set in a heating furnace b and which is connected by the main c with the water seal d. The gas flow regulator is shown at i and is controlled by the pressure of the gas in the gas retort a, this pressure being communicated to the regulator through the pipe h. The diaphragm of the regulator is shown at m, and the pipe g is connected with the gas main c and the other side of the diaphragm m. This regulator through the system of pipes q, r, s, etc., controls the admission of liquid to the water seal d, and the gas flow is then controlled



by the height of the water in the seal. E P. G. Wuensch, Steglitz near Berlin, Germany, assignor, Askama Werke A. G., vormals Centrawerkschaft Dessau und C. Bamberg-Friedenau, Berlin-Friedenau, Germany. Filed April 10, 1925. U. S. Patent No. 1,639,394.

Gas Water Heater

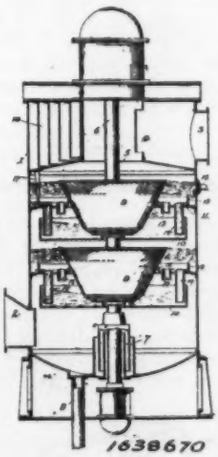
Water is heated in an apparatus, shown in the accompanying illustration, which is essentially comprised of an outer insulating casing B, an inner water storage tank A, forming an annular space



between, and a gas burner C. It is seen that the lower end of the water tank is placed at quite a distance above the bottom of the heater and the bottom of the water tank is made in such a fashion that it properly deflects the flame that strikes it. The flame thus strikes the bottom of the water tank and the hot gases are then directed toward the sides of the heater and are made to flow around the water tank up through the annular passage between the tank and the casing. The bottom of the water tank is also made with a depressed portion extending slightly below the remaining portion of the tank and so arranged as to direct the drippings of condensed water away from the burner, thus preventing this water from interfering with its operation. This apparatus is patented in U. S. Patent No. 1,637,395, by F. W. Shuell, Detroit, Mich., and assigned to Everhot Heater Co., Cleveland, O. Filed January 7, 1924.

Gas and Liquid Contact Apparatus

The apparatus seen in the accompanying apparatus is for the purpose of effecting contact between gas and liquid in order to carry out absorbing and purifying operations on the gas. The apparatus comprises a casing, 1, and re-



ceptacles, 10, which are arranged in that casing with a certain definite space left between the receptacle and the casing walls. Means are provided which extend into these receptacles and through which the liquor is removed from the receptacle and sprayed outwardly. A diaphragm is provided, extending inwardly from the walls of the casing at a point above the receptacle and this diaphragm receives the liquid which flows from the spray. Connection is made between the diaphragm and the rest of the apparatus through a series of tubular members, through which the liquid passes from the diaphragm and also the gas which flows in counter-current to the liquid. The gas enters at 2 and leaves at 3. U. S. Patent No. 1,638,670. F. H. Wagner, Baltimore, Md., assignor, The Bartlett Hayward Co., Baltimore, Md. Filed June 17, 1925.

Equipment News

Range Performs Triple Function

In the A-B Unified Gas Range may be witnessed a grand attack on both the old-style cooking device and some of the inconveniences of the basement furnace. In other words, A-B has here a range fueled by gas that cooks, bakes and heats.

The Unified Range is a completely equipped A-B cooking range of a beautiful design, having all the automatic conveniences, such as even heat control, lighter, etc., and is a masterpiece in material and construction.

In addition, there is the in-built heater section, which is so constructed that it draws in the cold, impure air of the room and sends it out almost instantly warmed and purified. Thus it adds a sanitary, healthful service, for it forces the foul air and gas fumes up a flue and ventilates the room as few heating appliances can do.

Of the several thousand Unified Ranges now in use, many of them are actually taking the place of the furnace during the spring and fall months, not only heating the kitchen comfortably, but also heating the adjoining rooms.

Self-Rescuer Listed as Permissible

The U. S. Bureau of Mines approval as "permissible equipment" has been granted to the Mine Safety Appliances Company self-rescuer, following tests which demonstrated its compliance with the requirements of Bureau Schedule 14A. The primary purpose in the design of the self-rescuer was to provide

miners with pocket-size respirator which could be used for escape from mines in which fires or explosions have created a toxic atmosphere containing carbon monoxide. The rescuer is similarly applicable by workers elsewhere who may be trapped in or compelled to enter for a short time an atmosphere containing carbon monoxide or other similar gases.

The method of use of the equipment is shown in the illustration. The operating instructions for use of the rescuer, which are printed on the approval plate, are as follows:

1. Pull ring to open.
2. Grip rubber tips firmly between teeth.
3. Close nose with spring clip.
4. Breathe only through self-rescuer.
5. Go to fresh air quickly.

Tests indicate that the rescuer is entirely effective for a period of approximately one-half hour, or a little longer, in any atmosphere containing sufficient oxygen to permit breathing. Where there is large deficiency of oxygen, a self-contained oxygen breathing apparatus must be used to provide complete protection.

The apparatus is offered by the Mine Safety Appliances Company, Pittsburgh, Pa. Each unit of the permissible apparatus carries an approval plate of the Bureau, on which are the above operating instructions.

In-So-Top Range Promotes Kitchen Comfort

The idea around which the Tappan In-So-Top gas range is built is comfort by way of a cool kitchen. This is provided for by way of a thoroughly insulated oven. Hence it is felt that with this new idea cooking in the summer will be stimulated.

Twenty pounds of the best rock wool are tamped inside the ovens to produce the insulating effect.

An additional feature of the In-So-Top range is that the oven is ventilated by abundant air circulation, which eliminates steaminess and carries off the cooking odors. The air, as it comes into the oven, must pass to and through the flames.

In order that no cold air may pass directly into the oven to disturb the circulation and lower the temperature, the walls are sealed to prevent its passage. Thus the circulation is fully controlled.

When vegetables are cooked in the oven very little water is required. This tends to improve the flavor and retains the mineral salts. Also, when baking is going on in the oven, broiling of chops and bacon can be done on the broiler below without changing the temperature of the oven.

Because of the ventilation, when cabbage and other strong flavored vegetables are cooking, they can be left uncovered in a large amount of water, and the steam and odor passes through the flue and out of the house.

A Pressure Regulator for Vapor Vacuum and Low Pressure Heating

An automatic pressure reducing valve known as the P. & W. type, designed especially for the variable demands of vapor, vacuum and low pressure heating systems with extreme sensitivity as well as thorough reliability, has been developed by the G. M. Davis Regulator Company, 422 Milwaukee Avenue, Chicago, builders of automatic valve specialties for more than fifty years.

A valve to be successful in this service must be free from friction because the control pressure is low and the fluctuations slight.

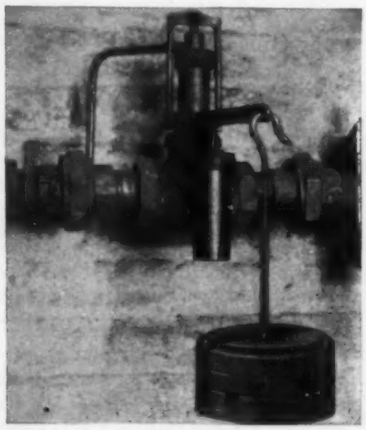
Sensitiveness in this Davis Regulator is accomplished by the simple method of connecting the disc to the diaphragm. Instead of using a stuffing box—the best of them create some friction—the steam passes through a bronze bushing which has an easy sliding fit. A slight leakage at this point is not objectionable as it is in the low pressure chamber from which the governing pressure is taken.

Having a flexible fabric insert rubber diaphragm of large area and a frictionless stem, this valve gives highly accurate and efficient service in all kinds of low pressure steam circulation where the reduced pressure is low.

In order to get an accurate average control pressure a small pipe is used to connect the diaphragm chamber with the low pressure line from five to ten feet from the valve. This pipe fills with condensation and protects the diaphragm from the heat of the steam. By placing a globe valve in this line any pumping action that might occur may be controlled.

The disc of this regulator is beveled and ground to a close fit in the seats.

The counterweight holds the valve open and the reduced pressure closes it. A balance between these two forces is attained in service. When properly installed the diaphragm comes beneath the pipe line. Davis P. & W. Regulators may be had with either globe or expanded outlet bodies having screwed or flanged ends.



The Davis P. & W. Pressure Regulator takes its name from the two leading steam heating systems which were in use when it was designed—the Paul and Webster systems.

As the function of a regulator is the same in all steam heating, the Davis P. & W. may be used no matter what name is given the system.

Patented Tile Corrects Several Faults of Furnace Construction

A material economy in the maintenance and a substantial lengthening of the life of furnace walls is claimed by Reintjes Flexible Corner Bonding Tile, which is patented. This tile eliminates all the common faults of corner construction and effects perfect bonding in both side and end wall.

Reintjes Flexible Corner Bonding Tile provides ample clearance for expansion at the corners. It also ties together the side and end walls, preventing the common fault of the front wall falling inward.

It can be placed in the side wall at intervals to take care of expansion needs. The expansion joint is provided either by parting of the tile or clipping with trowel the end of one tile.

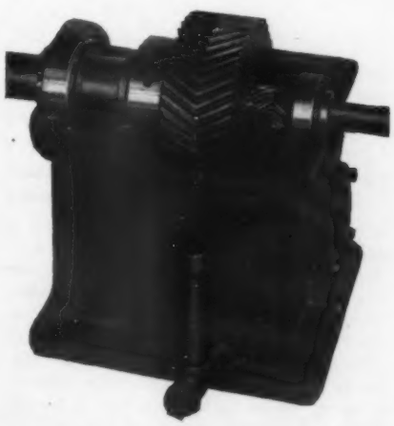
The tile is the thickness of one course of brick and serves as a starting brick for each course. The joints break at each succeeding course and form a perfect corner of the inner nine inch refractory lining. The title in each course overlaps the next lower course, further strengthening the structure. The tile is developed for use when the brick are set in the solid header or quarter bond patterns. Two corner bonding tiles displace three brick and one soap.

Any one desiring additional information on this material may secure the same by addressing George P. Reintjes Company, 2517-19 Jefferson Street, Kansas City, Mo.

Link-Belt Sykes Herringbone Speed Reducer

This speed reducer manufactured by Link-Belt Company, Philadelphia, can be economically applied to all classes of service no matter how light or heavy it may be. Distinct advantages are quietness of operation, high efficiency and ability to withstand shocks.

Three standard units have been developed to cover a wide range of ratios and capacities. The single reduction unit designated as type "S" covers ratios up to 10 to 1. Types "D" and "DV" are double reduction units. Type "D" is designated for heavy duty and ratios are from 10 to 1 up to 80 to 1. Type "DV" is a light duty reducer. Ratios range from 10 to 1 up to 130 to 1.



Link-Belt Sykes Herringbone Gears are the backbone of this speed reducer. The teeth run continuously across the face of the gear giving a good bearing service with the several teeth engaged. The pinions are of heat treated alloy steel cut integral with the shaft.

The unit has a minimum number of parts. Oversize Timken bearings are used. Gears rotate within a large oil reservoir and bearings are splash lubricated. This provides ample lubrication. Special oil baffles at shaft projections keep dust out and oil in. The housing is free from troublesome oil grooves and oil wipers.

Rigid construction insures proper alignment of parts and the base plate furnished when required maintains alignment of the reducer and its motor.

Book No. 715 describes this mechanism in detail.

Trade Catalogs

The Linde Air Products Co., New York City, have recently published a small booklet entitled "Long Pipe Lines with Oxwelded Joints," which sets forth some of the advantages of welding pipe for the transmission of gas and oil. A number of interesting illustrations are used.

Catalog 942, issued by C. J. Tagliabue Mfg. Co., Brooklyn, N. Y., describes the new TAG-Mono Indicator Recorder. This instrument, which indicates and records the CO and CO^2 content in flue gases, receives very able treatment in this catalog. There is a splendid fund of combustion data in this well-illustrated 24-page publication. The diagrams are well handled, leaving nothing to the imagination. In this latter respect the catalog is somewhat unique.

Some 32 well-illustrated pages are used in Catalog 95, R. H. Beaumont Co., Philadelphia, Pa., to describe their cable drag scraper for loading and storing bulk materials.

Connersville Blower Co., Connersville, Ind., have recently issued Bulletin 10C, which illustrates and describes their rotary positive blowers for capacities of 400 to 2,200 cu. ft. of air per minute, with pressures up to 2½ pounds or equivalent suctions. Tables of capacities are given.

"Chief Good-nuff's Last Stand" is the name of a clever little booklet put out by the Home Incinerator Co., Milwaukee, Wis. In it the hazards of promiscuous handling and storage of trash and garbage are interestingly discussed. A plan of what can be done to convert the cellar into more cleanly and useful quarters is shown.

Hotstream Heater Co., Cleveland, O., have recently issued their Catalog No 27. In this publication are announced several new and radical features of interest to the heating industry, particularly the Twin 80, a water heater designed for house-heating as well as water heating jobs. The catalog, which contains 30 pages, is well illustrated.

Cory Catalog Bulletin No. 201-29-C contains semi-technical descriptions, illustrations and data on seamless flexible metal hose manufactured by Chas. Cory & Son, Inc., New York City.

Taken from Previous Issues of the American Gas Journal

Ten Years Ago

Thomas Scofield, illuminating engineer of the Consolidated Gas Company, was mustered into the Federal service July 15th as Second Lieutenant, 35th Company, of the H Coast Artillery.

The Pacific Gas and Electric Company has let a contract for twenty frame cottages at Bay Point, Cal., for its employees, F. R. Peake of Berkeley being the successful bidder. Each building will be a story and a half structure, with Oregon pine finish inside.

Owing to the fact that several young men employed by the Easthampton (Mass.) Gas Company have been drafted the company has hired Miss Anna Clair to read meters. She will go from house to house, will enter cellars, read meters and leave bills. The experiment has been tried in other places with satisfaction, but it is the first time in Hampshire County, Mass.

De Witt Clinton, treasurer of the Worcester (Mass.) Gas Light Company, was elected a director of the company, succeeding Thomas B. Eaton, who died recently.

The Providence Gas Company in laying gas mains from East Providence to Warren pushed through Barrington to give a supply of gas to the Bristol County Gas and Electric Company. Men are now engaged in laying pipe along the side of the Long Swamp road, from Peck's Corner at West Barrington, and in a few weeks will have extended the line toward Barrington Centre.

Twenty Years Ago

President Copley does not seem to have forgotten the prowess of his days on Yale field, and we are so led to believe from the fact that at the annual outing of the men connected with the Aurora (Ill.) division of the Western United Gas and Electric Company a feature of the fun was a game of baseball between nines from the Aurora and Joliet plants. The score was 3 to 2 in favor of Aurora, and the deciding run was a "homer" made by the colonel.

According to official figures the Portland (Ore.) Gas Company is earning at the rate of eight per cent on its capital stock. This is a surprising showing.

A correspondent in San Jose, Cal., sends this, and we will put it out without comment: "Unknown to the authorities of Minneapolis, a negro named Charles J. Chatten has been running a rooming house for negroes in the abandoned Hennepin County jail; but the non-payment of rent to the county is not the reason why he changed his residence from the old jail to the new one. He was arrested, charged with stealing hundreds of dollars worth of gas from the Minneapolis Gas Light Company. Chatten says he came here a year ago, found the jail abandoned, and made a sleeping room of it. No one objected. Next he tapped the gas pipe and attached fixtures in the rooms, which he rented to other negroes. As there were few windows in the buildings the lodgers were not stinted in their use of the illuminant, wherefor the consumption was enormous. I am unable to tell how long he will remain in his present quarters."

Mr. George D. Roper, of Rockford, Ill., has offered to equip the new domestic science room in the Rockford high school with all necessary furnishings to give practical lessons in cooking by gas and the offer has been accepted. The donation includes a large gas range for the use of the demonstratress, and a small hot plate and oven for each of the 20 working desks in the class. All the necessary connections and piping are also to be supplied by Mr. Roper.

The New York Sun maintains an interesting column that bears the heading, "Live Topics About Town." Last Tuesday the following paragraph was printed therein: "I'll tell you a secret," said the old campaigner, "that I've just discovered. If you want an old-fashioned roasting ear that will make your mouth water and transport you back to your childhood days in the country, broil your ears of corn on your gas range. They taste exactly like the corn we roasted on a stick over the fire when I was a youngster on a farm in Iowa."

Forty Years Ago

The Municipal Gas Company of Albany, N. Y., advertises that those who wish gas services laid on to their houses, etc., can have that work done at the company's expense, provided notice of such intention is given to the company on or before November 15th next. That is liberal and should result in the placing of many new meters.

In Omaha, Neb., something over a fortnight ago, a gas main passing under the Eighteenth Street bridge was fractured and the gas company lost thereby about 150,000 cubic feet of gas.

Superintendent W. W. Prichard, of Ironton, Ohio, is back at his post after a lively skirmish with erysipelas. A new setting of 4's has been put in at the Ironton works, and Mr. P. announces that he is now ready for the fall campaign.

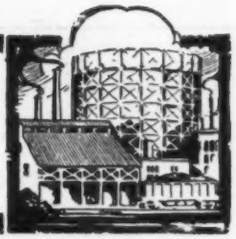
The Parker-Russell folks are settling three new benches of 5's for the Lima (Ohio) Gas Company. The furnaces are arranged to consume oil for fuel.

At a recent meeting of the Chattanooga Gas Light Company's directors it was resolved to reduce the price of gas in accordance with the following schedule: Gross, $1.70 per 1,000 cu. ft., with 10 cents off on all monthly bills over $40 and under $100, that concession to be doubled on bills over $100. A meter rent of 25 cents per month is to be charged where the monthly consumption fails to reach 200 cubic feet. Prior rate, $2 per 1,000.

President Atwater of the Poughkeepsie Gas Light Company must be classed with those who believe in selling gas at a low rate, whereupon we congratulate Superintendent Tracy, for the latter has always urged that cheap gas constitutes a bulwark of safety for the gas maker. According to the official announcement (published on August 25), the old Poughkeepsie Company agrees to supply consumers in accordance with the following schedule, the same to take effect on and after September 1st:

Quarterly consumption.	New rate per M.
8,000 cubic feet, or under.....	$2.00
Over 8,000 cubic feet.....	1.25

NEWS OF THE GAS INDUSTRY



Arrival of Natural Gas Celebrated by Setting Off Flare

Natchez, Miss.—As dusk settled on this city and the first shades of night began to fall a ball of fire shot through a small portion of the atmosphere filled with natural gas escaping from a four-inch pipe which had been erected upright in the bluff, set the gas afire as the flame of natural gas ignited shot heavenward, it was known that the first natural gas had arrived in Natchez.

Mayor L. A. Whittington and Aldermen R. E. Bost, O. O. Ogden, William Bullock and V. H. Sharp, equipped with rockets, fired the small balls of fire into the gassed atmosphere, lighted the gas and thus announced to the people of the city that the long fight for natural gas for Natchez had been completed.

It was thought that it would not be possible to secure natural gas for this city until the middle of November. However, R. L. Grissom, progressive manager of the Central Power and Light Company, secured permission from the Mayor and Board of Aldermen, in view of the deplorable condition of the artificial gas plant here, to bring natural gas into this city through a surface line and to charge the present gas rate.

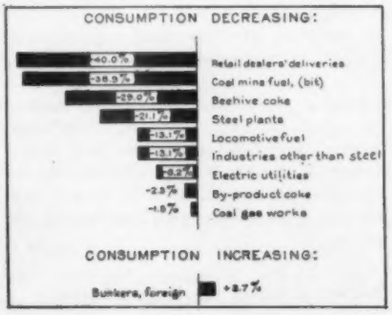
Thus it was that, with considerable expense on the part of the Central Power and Light Company, that natural gas was brought into this city and is now available to the housewives in this city.

This means another great step in the progress of Natchez. Within the short period of two and a half months the gas rates in this city will be materially reduced in such proportion as to be an inducement to large manufacturing plants to locate in this vicinity.

Survey of Commercial Coal Stocks

Washington, D. C.—Consumers' stocks of bituminous coal amounted to 62,000,000 tons on July 1, according to a survey just completed by the United States Bureau of Mines, Department of Commerce. In comparison with April 1, the date of the last previous survey, this was a decrease of 13,000,000 tons. In spite of the decrease, the stocks on July 1 were larger than at the corresponding season of any year on record. In comparison with last year they show an increase of 23,000,000 tons.

The consumption of bituminous coal in the second quarter of the year, including exports, averaged 9,350,000 tons a week. Production averaged 8,217,000 tons, leaving a weekly deficit of 1,088,000 tons, which was met partly out of consumers' stock piles and partly out of the very large quantity in transit in railroad cars when the suspension of mining began.



In addition there were 6,840,554 tons of bituminous coal on the docks of Lakes Superior and Michigan.

Stocks of anthracite are fully up to normal for this season of the year.

Natural Gas Wells in Indiana Still Productive

Indianapolis, Ind.—Natural gas wells in Decatur and Rush Counties in Indiana still are providing a flow of gas, according to a report made to Richard Lieber, director of the Indiana conservation commission by Dr. W. H. Logan, state geologist, who has completed a survey of that district. In spite of the general impression that Indiana's natural gas supply is about exhausted, Dr. Logan reports that additional wells are frequently being drilled in the field and that the Harrison County field is sending a steady flow to Louisville, Ky., domestic and industrial consumers. The pressure is excellent, the report says. Many wells in the Greensburg, Ind., district are equipped with spring check valves and only the oldest wells are permitted to flow to their full capacity. Recently a new well was brought in in Sullivan County in the western part of the State, having a 300-pound pressure to the square inch.

Minneapolis Gas Light Co. Announces Cut in Rate

Minneapolis, Minn.—The Minneapolis Gas Light Co. has announced a cut of two cents in its rate for the four months period beginning September 1. The present rate is 96 cents per thousand cubic feet and it is estimated that Minneapolis householders will save $28,000 as a result of the reduced rate.

The holder cost, or cost at the plant, was 45.22 cents for the four months ending June 30, 1927, according to a schedule filed with the city clerk in compliance with an ordinance. The difference between this figure and the retail price is taken up by taxes and other operating costs. Taxes for the new rate this year are figured at 6.87 cents.

For the present four months period beginning May 1 there was an increase of three cents over the rate for the preceding period.

Maps of the Oil and Gas Fields of Oklahoma and Texas

The Department of the Interior announces the publication by the Geological Survey of new editions of its maps of the oil and gas fields of Oklahoma and Texas. Increased output of oil in these states is the chief contributor to the present overproduction in the country as a whole and the consequent low prices.

The names and locations of the new pools from which the increased yield is being obtained and the location of many new wildcat wells are shown on the maps. Developments are so rapid, however, that even at the time of publication the maps are not strictly up to date. But the scale is sufficiently large so that those interested can record new developments.

The maps are printed in colors. The scale is approximately eight miles to an inch for Oklahoma and twelve miles for Texas, the size of the two maps being, respectively, 64x34 and 74x57 inches. These maps may be obtained from the U. S. Geological Survey, Washington, D. C., for the nominal price of 50 cents each.

By-Product Oven Gas and Coke Production Continue At High Level

Curtailment in Steel Activity Met by Reduction in Beehive-Oven Branch of Business

Approximately 350 billion cubic feet of by-product-oven gas were produced in the United States during the first six months of 1927, according to estimates made by the American Gas Journal on the basis of coke reports from the U. S. Bureau of Mines. This gas production is at substantially the same rate as the oven-gas production during 1926, which was a record-breaking year. The fact that steel production has been curtailed and some decrease in coke production was necessary has not affected the production of coke or gas at the by-product ovens materially. Almost all of the curtailment in oven activity has been at beehive-oven plants, as clearly demonstrated by the figures in the accompanying tables.

Estimated from the coke production and coal consumption reported by the U. S. Bureau of Mines, the following summary of by-product oven activities has been prepared for the six-month period January to June, 1927:

Bituminous coal used, net tons	31,768,000
By-product coke made, net tons	22,111,000
Oven gas made (including heating gas), cu. ft.	350,000,000,000
Tar produced, gallons	270,000,000
Ammonium sulphate equivalent of liquor and sulphate, tons	350,000
Crude light oil produced, gallons	81,000,000

These figures demonstrate that during the first half of 1927 the rate of output of coke and by-products was above 99 per cent of the production rate during the preceding calendar year. During practically all of 1927 there have been 77 by-product-oven plants active and one idle. These plants are reported as producing during June at approximately 82 per cent of their rated capacity. It should be understood, however, that a plant seldom can operate for any long period at more than 90 to 92 per cent of its rated capacity, because brief shutdowns, slight interruptions and minor delays in operation almost invariably accumulate to a total of 8 to 10 per cent of the maximum rated operating capacity.

Monthly Output of By-Product and Beehive Coke in the United States

(Net tons) (Excludes Screenings and Breeze.)

	By-product Coke	Beehive Coke	Total
January	3,700,000	787,000	4,487,000
February	3,435,000	754,000	4,189,000
March	3,879,000	890,000	4,769,000
April	3,707,000	780,000	4,487,000
May	3,792,000	630,000	4,422,000
June	3,598,000	577,000	4,175,000
Total	22,111,000	4,418,000	26,529,000
1927 monthly average.	3,685,000	736,000	4,421,000
1924 monthly average.	2,833,000	806,000	3,639,000
1925 monthly average.	3,326,000	946,000	4,272,000
1926 monthly average.	3,712,000	957,000	4,669,000

Estimated Monthly Consumption of Coal in the Manufacture of Coke (Net Tons)

	Consumed in By-Product Ovens	Consumed in Beehive Ovens	Total Coal Consumed
January	5,316,000	1,241,000	6,557,000
February	4,935,000	1,189,000	6,124,000
March	5,573,000	1,404,000	6,977,000
April	5,327,000	1,230,000	6,557,000
May	5,448,000	994,000	6,442,000
June	5,169,000	910,000	6,079,000
Total	31,768,000	6,968,000	38,736,000
1927 monthly average.	5,295,000	1,161,000	6,456,000
1924 monthly average.	4,060,000	1,272,000	5,332,000
1925 monthly average.	4,759,000	1,452,000	6,211,000
1926 monthly average.	5,334,000	1,509,000	6,943,000

San Angelo Gets Low Industrial Rate

The first big industrial contract for gas has been signed by the West Texas Utilities Company and the Western Gas Service Company. The announcement was made jointly by Taylor Rowe, manager of the West Texas Utilities in San Angelo, and L. M. Roberts, president of the Western Gas Service Company, which has headquarters in San Angelo and is piping natural gas here from Coleman County gas fields.

The contract calls for the use of from 25 to 100 million cubic feet of gas a month. It gets a low industrial rate and means cheaper fuel for the local utility company, which has equipped its engines for the use of either gas or oil.

The contract runs for five years and bears the privilege of renewal. The gas is expected to be in San Angelo at least by October 1.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY ESTABLISHES FIELD STATION IN FUEL AND GAS ENGINEERING

Co-operative Arrangement Made With the Edison Electric Illuminating Company of Boston

Boston, Mass.—Through Mr. C. L. Edgar, president, and Mr. R. E. Dillon, superintendent of the generating department of the Edison Electric Illuminating Company of Boston, arrangements have been completed whereby the students of the course in Fuel and Gas Engineering of the Massachusetts Institute of Technology will do field work and testing at the Edgar Station of the Edison Company.

This course is intended to train graduate engineers in the theory and practice of fuel utilization, gas manufacture, and power generation. The work consists of one academic year of graduate study at the institute, followed by six months' field work. In this field work the theoretical side of fuel and gas engineering studied at the institute is applied to the actual processes of combustion, gas manufacture, and power generation and oil refining by plant studies and tests on full scale equipment in commercial operation—all carried out under the immediate supervision of a member of the institute faculty.

The Edgar Station of the Edison Electric Illuminating Company of Boston is one of the newest and most modern of electric central stations.

Other field stations of this course are located at the plants of the Cambridge Gas Light Company, the Lackawanna plant of the Bethlehem Steel Company, the Iroquois Gas Company and the Bayonne refinery of the Tide Water Oil Company.

Natural Gas Pipe Lines Checked by Government Engineers for Leakage

A recent report issued by the Bureau of Mines shows important advantages for welded natural gas pipe lines over the screw-coupled and rubber-coupled joint types.

"The tests that have been run on welded lines show conclusively that this type of construction is preferable, as far as leakage is concerned," says the Circular No. 6010 by E. L. Rawlins.

To arrive at this conclusion, 26 lines were studied. Of these, there were 11 screw-coupled lines, 9 rubber-coupled lines and 5 welded lines. Operating pressures in these lines varied from 165 to 300 lbs. per sq. in. The lines were located in all parts of the country and varied widely in age of pipe, local conditions, terrain and temperature. The figures are given below:

LOSSES IN CU. FT. PER YEAR PER MILE, 3 IN. LINE AT 100 LB. GAUGE (USING EQUIVALENT MEASUREMENTS

—Screw-Coupled Lines—			—Rubber Coupled Lines—			—Welded Joint Lines—		
Line No.	Loss	Operating Press.	Line No.	Loss	Operating Press.	Line No.	Loss	Operating Press.
1	4,916,000	165	12	7,450,000	260	21	625,000	165
2	4,299,000	165	13	825,000	260	22	58,000	290
3	2,581,000	165	14	1,400,000	260	23	17,000	165
4	15,100,000	160	15	961,000	260	24	512,000	290
5	1,625,000	130	16	800,000	270	25	75,000	280
6	686,000	230	17	400,000	140	26	630,000	300
7	660,000	170	18	3,400,000	210			
8	1,142,000	140	19	912,000	230	Total	1,917,000	1,470
9	1,091,000	140	20	66,000	210	Av'ge	319,000	248
10	1,037,000	230						
11	1,443,000	225	Total	16,414,000	2,100			
			Av'ge	1,823,000	233			
Total	34,580,000	1,920						
Av'ge	3,143,000	174						

From the above figures, which are for 26 different lines and not comparable other than by average, it will be seen that the loss of the screwed line is about ten times that of the welded line, and the rubber-coupled line is about six times as great.

Course in Elements of Gas Engineering

As a result of the combined efforts of Mr. C. E. Paige, vice-president of the Brooklyn Union Gas Company, and Dr. Parke R. Kolbe, president of Brooklyn Polytechnic Institute, a course on the Elements of Gas Engineering is being offered to the employees of the gas company, the course being given at the Institute.

The announcement recently made to the employees of the gas company states that the course is offered to those employees who are engaged in work where a knowledge of the theory underlying the practical operations which they carry out will be helpful. The course is designed particularly for those men who, after attending a high school course or its equivalent, have not had the opportunity to carry their studies further. The company further states that the cost of the course will be paid on the basis of one-half by it and one-half by the employee, and upon the successful completion of the studies, the employee will be refunded the amount paid. The employee will be permitted to pay his part in easy installments.

The course as designed consists of 20 lectures and 20 periods of laboratory practice. The lectures, most of which will be delivered by Professor John E. Setchell, of the Institute's Mechanical Engineering Department, will start with a brief review of the past history and development of the industry. This first lecture will be supplemented by many interesting slides, gathered by the late Dr. A. H. Elliott, well-known gas chemist and engineer, showing the progressive steps in lighting, including the primitive Indian fire sticks, torches, oil lamps, candles, matches—all the methods of kindling a flame. The following lectures will proceed with a consideration of the general physical laws of gases and of the chemical principles of combustion and of gas making. The lectures will also include a consideration of the many practical applications of gas to present day manufacturing and heating of dwellings as well as the cooling of food as a substitute for ice.

Experimental Work

This will all be supplemented by the experimental work done during laboratory sessions. The apparatus of the physics, heat treatment, forge, foundry and mechanical and chemical engineering laboratories will be available for this work. The special gas laboratory which, in co-operation with the Brooklyn Union Gas Company, has been installed at the Institute, will be used for the principal part of this work. This represents probably the most up-to-date gas fired equipment laboratory in the country. It includes the most modern gas fired equipment that has been found commercially practicable and efficient.

The course will be under the direct supervision of Professor E. F. Church, head of the mechanical engineering department, together with Professor John E. Setchell, who is giving all his time to this work. Among the lecturers will be Mr. E. C. Uhlig, chief chemist of the Brooklyn Union Gas Company and chairman of its educational committee; Mr. Joseph Jares, and Mr. T. B. Merkt, members of the gas company's technical staff and associated with the evening department of the institute. Mr. Merkt and Mr. John Anthes, of the chemical department of the gas company, in cooperation with the professors in charge of the mechanical, physical and chemical laboratories at the institute, will supervise the laboratory exercises.

The course starts on Thursday, October 6, and continues for twenty weeks.

Company to Make Refund to Lot Owners

Indianapolis, Ind.—Contracts have been signed whereby the Northern Indiana Public Service Company, Fort Wayne, Ind., will refund shortly $70 to each lot owner and builder in Lafayette Place, a suburb of Fort Wayne, for the gas mains bought by the owners several years ago before the addition was incorporated within the city limits. When the addition first was subdivided about four years ago the gas company dd not pay for the mains set in as the new lots were outside the city limits. Since the incorporation in the city the company will buy back the mains, which cost the lot owners approximately $38,000.

The refund will be made to the 425 lot owners who have tapped in on the mains by the company as soon as suitable arrangements for disbursement can be made.

SIX BIG UTILITIES ARRANGE MERGER

Adirondack Power, Albany, Cohoes, Troy and Fulton County Companies Involved

Albany, N. Y.—A petition representing a capital and bonded investment of over one hundred million dollars, praying for permission to consolidated into one corporation to be known as New York Power and Light Corporation, the leading light, power and gas companies in the capitol district, was filed with the Public Service Commission on August 11th. Under the terms of the proposed merger the Municipal Gas Company of the City of Albany would first purchase the other corporations with their works, franchises and systems and in turn transfer them to the newly created corporation.

The utilities to be merged into the one corporation are: Adirondack Power & Light Corporation, Municipal Gas Company of the City of Albany, Troy Gas Company, Fulton County Gas and Electric Company, Cohoes Power and Light Corporation, Adirondack Electric Power Corporation, and Eastern New York Utilities Corporation. Incident to the process of the merger the holdings of stock now owned by Mohawk-Hudson Power Corporation (a utilities holding company) in the corporations to be merged will be acquired.

The directors and subscribers of New York Power and Light Corporation, whose principal office and place of business is Albany, New York, are:

Charles S. Brewer, 126 State Street, Albany; Charles S. Ruffner, 126 State Street, Albany; Robert Olcott, 63 State Street, Albany; Neile F. Towner, 126 State Street, Albany; Oswald L. Johnson, 506 West 111th Street, New York City; Harry C. Shields, 19 Second Street, Troy; Jesse R. Lovejoy, Darius E. Peck, 1 River Road, Schenectady; Abram V. Morris, 7 Chuctanunda Street, Amsterdam; Maurice Hooper, 1 Glen Street, Gleans Falls, and Thaddeus R. Beal, 50 Market Street, Poughkeepsie.

New York Power and Light Corporation asks the Commission for authority to issue the following stock:

(a) $2,554,700 par value of 8 per cent preferred stock.

(b) $14,655,000 par value of 7 per cent preferred stock.

(c) 26,070½ shares without par value of its $6 preferred stock.

(d) Not to exceed 7½ additional shares without par value of its $6 preferred stock.

Letters sent to Adirondack Corporation's stockholders here give September 1 as the date upon which the consolidation vote will be taken. Similar letters specifying varying dates are also being sent to stockholders in the other five utilities.

Exchange of stock of the present utilities will be on the 50-50 basis for that of the new consolidated corporation, the letter declared.

Application to consummate the merger will be filed with the Public Service Commission probably within the next few weks. Under the plan all six of the utilities would drop their corporate entities, including name, for control and operation by a board of directors comprising representatives of the boards of the six existing corporations.

Lockport Light, Heat & Power Company Petitions to Extend Mains

Albany.—The Lockport Light, Heat & Power Company has petitioned the Public Service Commission for authority to extend its gas lines in the towns of Wilson, Hartland, Cambria and Royalton, Niagara County, and for the exercise of franchises therefor granted by the respective town boards.

New Gas Schedules Approved by New York Public Service Commission

Albany, N. Y.—The Public Service Commission has approved new gas schedules as follows:

Brooklyn Borough Gas Company gas service supplied in Borough of Brooklyn (Thirty-first Ward), City of New York. Schedule effective August 1, 1927, provides rates as follows: For light, heat, or power, $1 for first 200 cu. ft. (or less) of gas per meter per month, and 11c. per 100 cu. ft. for all over 200 cu. ft. per month. For use of service exclusively for space heating (through separate meter), available to applicants who are and continue to be consumers also under classification referred to above, $1 for first 200 cu. ft. (or less) per month, and 9c. per 100 cu. ft. for all over 200 cu. ft. of gas per meter per month. Rates per M. cu. ft. heretofore in effect: $1.30 for first 100,000 cu. ft.; $1.25 for next 200,000 cu. ft.; $1.20 for next 300,000 cu. ft.; $1.15 for next 400,000; $1.10 for all over 1,000,000 cu. ft. per month.

Pennsylvania Gas Company schedule effective July 4, 1927, provides for mixed natural and artificial gas service in villages of Celeron and Lakewood and town of Carroll, County of Chautauqua. Rate for cooking, baking and heating water for domestic purposes is 75c. per M. cu. ft. Minimum charge $2 per month.

Westchester Lighting Company schedule effective June 20, 1927, by special authority of the commission, provides block rates as follows for use of gas service for light, heat and power in Edgemont district, Scarsdale district and Weaver Street district: First 100 cu. ft. per meter per month, 80c.; next 100,000 cu. ft. $1.70 per M. cu. ft.; next 200,000 cu. ft. $1.65 per M. cu. ft.; next 300,000 cu. ft. $1.60 per M. cu. ft.; next 400,000 cu. ft. $1.55 per M. cu. ft.; all over 1,000,000 cu. ft. per month $1.50 per M. cu. ft.

University of Minnesota to Hold Welding Conference

A conference embracing all phases of the welding industry is to be held at the University of Minnesota on October 20, 21 and 22, 1927, according to plans worked out by Professor S. C. Shipley, acting head of the Mechanical Engineering Department of the College of Engineering. This is the first conference of this nature held by the University of Minnesota, but according to the considerable interest shown by the users of welding equipment in the territory, the holding of such a conference promises to be a yearly event.

A large part is to be given to papers read by practical users as well as round table discussions led by experts in their respective lines.

Students Enrolled in Second Short Course in Industrial Gas Sales Engineering, University of Illinois

An Abundance of Natural Gas

Greenwood, La.—Late July reports are that the Greenwood Production Co. completed a gas well flowing sixty-two and one-half million cubic feet daily in the north Greenwood district, Louisiana. It was drilled to a depth of 896 feet. It will be connected to the Dixie pipe line now being built, the gas to be transported via the Dixie line to Houston and Port Arthur, Texas.

Northern Indiana Public Service Co. to Provide Gas for Use at Huntington, Ind.

Huntington, Ind.—The Indiana public service commission has approved a contract between the Northern Indiana Public Service Company of Gary, Ind., and the Northern Indiana Power Company of Kokomo, Ind., in which the former agrees to provide gas for use at the latter's Huntington, Ind., plant. Lack of available space for the expansion of the Huntington plant is given as the reason for piping the product into the town.

Committee on Public Speaking Inaugurated by Westchester Lighting Co.

Yonkers, N. Y.—A committee on public speaking has been inaugurated in connection with the Empire State Gas and Electric Association. Mr. William Judson Clark, vice-president of Westchester Lighting Company, Yonkers, New York, has charge of this work in Westchester County. Mrs. Cecil G. Harvey, director-in-charge of the Home Service Division, Mrs. Sarai Waugh, lighting specialist, and Miss Helen Seiffert, all of Westchester Lighting Company, have been appointed on this committee.

Commission Approves New Schedule of Republic Light, Heat & Power Co.

Albany, N. Y.—The Public Service Commission has approved a new schedule of the Republic Light, Heat & Power Company to become effective October 1, 1927, providing for new gas service in village and town of Oakfield. Rate is block (per M. cu. ft.): $2 for first 1,000 cu. ft.; 90c. for next 2,000 cu. ft.; 70c. for next 7,000 cu. ft.; 60c. for next 40,000 cu. ft., and 55c. for all over 50,000 cu. ft. per month. Minimum charge $1 per month per meter. Bills rendered with 5c. per M. cu. ft. added to above schedule and discounted 5c. per M. cu ft. if paid on or before the tenth of the month.

Gas for Imperial Valley in California

El Centro, Cal.—The plant of the Inland Empire Gas Company is expected to be in operation during September and will supply gas to the cities of El Centro, Calexico, Brawley and other smaller towns in the Imperial Valley of California. The El Centro mains have already been laid and lines to other towns are to be established this fall. The plant is located in El Centro.

Phillips Subsidiary and Roxana Pushing Work

Recent orders for 28,000 tons of pipe received by Youngstown Sheet and Tube from Roxana Petroleum will enable the company to hold its pipe operations at about 75 per cent of capacity for some time, officials announce.

Work will start about September 1 on the pipe line to be laid by Oklahoma Natural Gas Company, subsidiary of Phillips Petroleum, at a cost of $10,000,000, from the Panhandle field, Texas, to Oklahoma City.

Personals

Pacific Gas & Electric Company Elects New President

At a meeting on August 16th the board of directors of the Pacific Gas & Electhe Corporation elected Mr. A. F. Hockenbeamer of San Francisco, Cal., to fill the presidency of the company left vacant by the death of Mr. W. E. Creed.

A. F. Hockenbeamer

Courtesy Western Gas

Mr. Hockenbeamer was born in Logansport, Ind., in 1871. He spent the early years of his life in railroad work, entering the employ of the Pennsylvania Railroad at the age of 16 and advancing in this work until at the time he went to California, nearly twenty years ago, he was assistant to the president of the Rock Island System.

At that time he went to San Francisco for N. W. Halsey & Co., the investment bankers, who owned a large amount of stock of the Pacific Gas & Electric Company. Shortly after becoming interested in the affairs of the San Francisco Company, he became its comptroller, and a few months later treasurer. After two years in this work he was made vice-president.

Through his efforts the policy of customer ownership of the stock of public utilities was inaugurated in 1914. This policy has spread throughout the country and is probably the greatest improvement in financing public utilities taken in recent years. During the past thirteen years the stockholders of the Pacific Gas & Electric Company have increased from 3,000 to 47,000 and more than $66,000,000 worth of its stock has been sold without underwriting.

To fill the vacancy on the board of directors, Mr. C. H. Dickey was elected. Mr. Dickey has been actively interested in public utilities on the Atlantic and Pacific coasts for some years and is at present vice-president of the Southern Counties Gas Company of Los Angeles.

F. C. Weber Appointed Assistant Vice-President of Brooklyn Union Gas Co.

The Brooklyn Union Gas Company takes pleasure in announcing the appointment of Mr. F. C. Weber as assistant vice-president, effective September 1.

Mr. Weber has been connected with Henry L. Doherty & Company as gas engineer. He received his early education at Akron, Ohio, and was graduated from Purdue University in 1905.

He is past-chairman of the Technical Section of the American Gas Association, a member of the Advisory Council of the American Gas Association, and active on many committees in that organization.

W. S. Vivian Speaks Before Rotary Club

W. S. Vivian of the public relations department of the Middle-West Utility Company of Chicago, spoke recently at

the regular meeting of the Rotary Club of Vincennes, Ind. He said that with few exceptions the operating expenses of government ownership of business had been at least five times greater than the operating expenses under private ownership. He said, however, that it would not be surprising if the government or the representatives of the people would not try to induce the government to embark in various businesses.

Mr. Vivian said that "service" is something that is satisfactory to everyone concerned, and that it is doing something one doesn't have to do and that one is not paid to do.

A. H. Rick Appointed Assistant to General Commercial Manager of Electric Bond and Share Company

A. H. Rick has recently been appointed as assistant to Mr. H. N. McConnell, general commercial manager of the Electric Bond and Share Company of New York.

Mr. Rick has been connected for the past 18 years with the commercial activities of gas and electric companies.

Rufus Dawes Inspects Muncie Branch

Rufus Dawes of Chicago, Ill., president of the holding company of which the Central Indiana Gas Company is a branch, and a brother of Charles G. Dawes, Vice-President, arrived in Muncie, Ind., recently for an annual inspection of that branch of the company. He and his party of officials, together with Muncie officers, visited all the plants and offices, examining the equipment, materials and records.

Mr. H. R. Stephenson Appointed Commercial Agent at Des Moines Gas Company

Mr. H. R. Stephenson, for the last eleven years sales manager of the Sioux City Gas and Electric Company, has been appointed commercial agent for the Des Moines Gas Company, to succeed Mr. E. H. Martin, according to an announcement by Mr. H. R. Sterrett, vice-president and manager of the Des Moines Gas Company.

Mr. Stephenson will have charge of an enlarged sales department covering gas equipment for home, commercial and industrial use.

Mr. Stephenson has been with the United Gas Improvement Company, of which both the Des Moines and Sioux City companies are subsidiaries, for more than seventeen years. He was connected with the Northern Indiana Gas and Electric Company and the New Gas Light Company of Janesville, Wis., prior to going to Sioux City.

Obituary

George W. Hergesheimer Dies At 46

George M. Hergesheimer, assistant to general agent of the Philadelphia Gas Works (U. G. I.), died suddenly on Tuesday, August 23rd, at the Presbyterian Hospital. He had undergone an operation for appendicitis ten days ago and was thought to be out of danger when death came suddenly.

Mr. Hergesheimer, who was 46 years of age, resided at 510 E. Johnson Street, Germantown. He had been in the employ of the United Gas Improvement Company since 1902 and had advanced from a clerkship to the position of assistant to general agent, to which he had just recently been appointed. He was active in civic affairs in Germantown. He was president of the Clivedon Improvement Association and a director of the Clivedon Improvement Building and Loan Asociation. He was Past Master of Progress Lodge 609, F. and A. M., a member of Jerusalem Chapter No. 3, Philadelphia Consistory (32°), and was a Shriner. He was a member of the Methodist Episcopal Church and of the American Gas Association.

Mr. Hergesheimer is survived by his widow and four children, Cordelia, George L., Clara R. and Herbert M.

Lewis Lillie Dies at His Home in Haverford

Lewis Lillie, a vice-president of the United Gas Improvement Company, and one of Philadelphia's ablest financiers, died early Saturday, August 27, at his home, "Briarwood," Haverford, Pa. He was in ill health since May, 1924, when he suffered a stroke. Prior to that time, in addition to his duties in the U. G. I. Company, he was an important factor in the management of the Public Service Corporation of New Jersey as a director, of the Connecticut Light and Power Company, and of the Counties Gas and Electric Company, of which he was president.

Mr. Lillie was born October 13, 1863, in Troy, N. Y. He was the son of Lewis Converse Lillie and Julia Maria (Fry) Lillie. His ancestors on both sides were of English origin and early settlers in the American colonies.

Mr. Lillie was educated in the public schools at Troy. At 16 he began his business career in New York City as a clerk in the legal department of the Northern Pacific Railroad Company. In 1887 he became auditor of the United Gas Improvement Company. In 1893 he was promoted to the office of assistant treasurer of the U. G. I. and in 1894 he became comptroller of the company. In 1900 Mr. Lillie was elected secretary and treasurer of the U. G. I. He was elected a vice-president in 1905 and in 1918, still retaining his vice-presidency, he was elected general manager. On May 3, 1926, he resigned as general manager on account of ill-health.

Mr. Lillie was a director of the Franklin-Fourth Street National Bank, the Guaranty Company of North America, the Welsbach Company, and of various other local enterprises. He was a member of the Capital Issues Committee, created under the War Finance Corporation Act, which had charge during the World War of all capital issues made in Federal Reserve District No. 3.

Mr. Lillie was a member of the New England Society of Pennsylvania, the Historical Society of Pennsylvania, the Franklin Institute and the Pennsylvania Society of the Order of the Founders and Patriots of America. He was a member of St. Mary's Episcopal Church, Ardmore. His clubs were the Marion Cricket, Bankers of America, Rittenhouse, Seaview Golf and the Bachelors Barge.

In 1890 Mr. Lillie married Miss Emily Clinton Murray of Philadelphia. Three children were born to them: Lewis Lillie, died in 1909; Mrs. Henry Wood Wiley, of Stamford, Conn., and Mrs. S. Bowman Wheeler, of Rosemont, Pa. He has three grandchildren, Henry Wood Wiley, Jr., Samuel Bowman Wheeler, Jr., and Emily Jean Wheeler.

Services were held at his late residence on Tuesday afternoon, August 30, at 3 o'clock.

Pacific Gas and Electric Company Head Dies

Wiggington E. Creed, president of the Pacific Gas and Electric Company, died from apoplexy on August 6th at his home in the suburbs of San Francisco.

Mr. Creed was an attorney by profession and since 1915 has become widely known as an authority on public service corporations. He has been president of the Pacific Gas and Electric Company since 1920.

He was also president of the Columbia Steel Company, the C. A. Hooper Foundation, the Contra Costa County Bank, and director of the Wells-Fargo Bank and Union Trust Company, the Associated Oil Company, besides various other public utilities in the United States.

The Trade calls it "The "MILLION DOLLAR BURNER"

THE three outstanding features that any good gas man looks for in a gas heater line are furnished in abundance in the Welsbach units. The first point is for the gas company's own protection—there must be unusual efficiency and flexibility. The famous Welsbach burner, the very heart of the device, sets new standards in this direction. The next two points are the big selling items—price and appearance. And on these, one look at the Welsbach numbers will give the line the double Okay. There never was a bigger money's worth offered.

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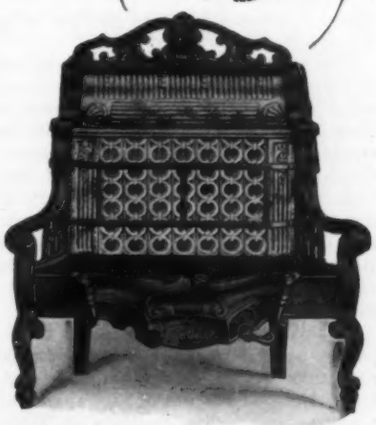
OFFICES IN PRINCIPAL CITIES

Member of American Gas Association *Member of Natural Gas Association*

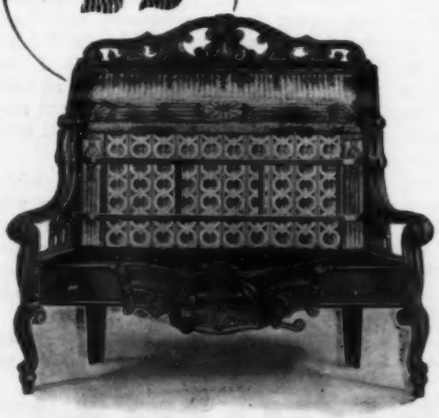
Welsbach Radiant Heaters

$15



No. 51—Seven glowers. Finish: Silvered Brown. Columns beautifully tinted. Size: 23 inches high, 20¼ inches wide, 11½ inches deep.

$22



No. 47—Ten glowers. Finish: Silvered Brown. Columns beautifully tinted. Size: 23 inches high, 24 inches wide, 11½ inches deep.

$28

No. 49—Twelve glowers. Finish: Silvered Brown. Columns beautifully tinted. Size: 23 inches high, 28 inches wide. 11½ inches deep.

DR. A. C. HUMPHREYS, NOTED ENGINEER AND EDUCATOR, PASSES AWAY

A Gas Engineer of International Prominence

New York.—Dr. Alexander Crombie Humphreys, who retired at the end of the recent scholastic term as president of Stevens Institute of Technology after twenty-five years' service, died on August 14th at his home in Morristown, N. J. His death was the result of a general breakdown.

Dr. Humphreys was born March 30, 1851, in Edinburgh, Scotland, the son of Dr. E. R. Humphreys, a schoolmaster. His parents brought him to the United States when he was eight years old, and the family made its home in Boston.

From early youth young Humphreys showed those qualities of energy and determination which were to later develop him into an educator of first magnitude and an engineer of international prominence. When not sixteen years old he passed the competitive examination for admission to the United States Naval Academy, but was rejected when his age was ascertained.

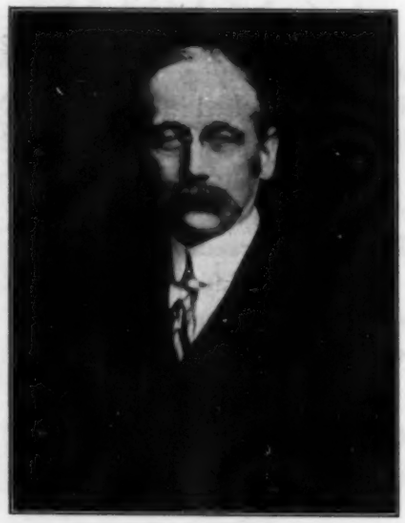
The youth decided to enter business and found employment in an insurance office in Boston. In 1866 he went to New York and for six years was in the employ of the Guarantee and Indemnity Company there. During part of that time he had acted also as secretary of the building committee of the Bayonne and Greenville Gas Light Company of Bayonne, N. J., and in 1872 became its secretary, and the following year became superintendent of the company.

At this stage of his career Dr. Humphreys became convinced that technical education would be advantageous and, accordingly, at the age of 26, he took up a course at Stevens Institute of Technology, at the same time maintaining his position with the gas company. He was a part time student and was told that it would require six years for him to finish the course.

He finished it in four years, however, and was graduated in 1881, the faculty recognizing his achievement in resolutions of commendation. During his college years he had been, besides superintendent of the gas company, vestryman and church treasurer, Sunday school superintendent, a member of the Board of Education of Bayonne and foreman of its volunteer fire department.

Chief Engineer at Graduation

The year after his graduation Dr. Humphreys became chief engineer of the Pintsch Lighting Co. In 1885 he became construction superintendent for the United Gas Improvement Company of Philadelphia. He had established also the gas engineering firm of Humphreys & Glasgow of New York and London, which was succeeded by the firm of Humphreys & Miller. In 1890 he made the first successful installation of water gas in England. His firm also established water gas plants in Australia, New Zealand, China, Belgium and Germany.



Dr. A. C. Humphreys

From 1902 to last July Dr. Humphreys was president of Stevens Institute of Technology and remained as chairman at the time of his death. He held degrees from the University of Pennsylvania, New York University, Columbia University, Brown University, Rutgers University and Rensselaer Polytechnic Institute.

Member of Many Societies

He was a former president of the American Institute of Consulting Engineers, the American Society of Mechanical Engineers, the American Gas Institute, the Canadian Society of New York, the American Gas Light Association, the Engineers' Club and the St. Andrews Society and was a member of the United Engineering Society, the National Society for the Promotion of Industrial Education, the American Association for the Advancement of Science, the British Association for the Advancement of Science, the Society for the Promotion of Engineering Education, the American Society of Mining and Metallurgical Engineers, the American Society of Civil Engineers, the Institution of Civil Engineers of Great Britain, the Lotos Club, the Century Club, the Lawyers' Club, the Union League Club, the University Club and the Church Club of New York.

Trade News and Construction

U. G. I. Contracting Co.'s Activities

Once again the familiar U. G. I. insignia is to appear on gas plant equipment south of the Equator. This time cone top carburetted water gas apparatus is to be furnished at Rosario, Argentina, South America, contract being awarded for the entire installation to the U. G. I. Contracting Company, Philadelphia.

The parts generally included in the contract comprise a complete carburetted water gas apparatus arranged for the use of bituminous fuel and equipped with Chrisman Cycle, full hydraulic operating mechanism, U. G. I. Model "B" Automatic Control and thermo control. Adjacent to the water gas set and connected thereto will be installed a U. G. I. vertical waste heat boiler, which will utilize the sensible heat from the blast gases from the set for the production of steam for blast purposes.

To assure against interruption, the blowing plant will be installed in duplicate, one unit being steam turbine driven and the other electric motor driven. Each unit will be capable of delivering 13,900 cu. ft. of air per minute at 36 lb. static pressure.

For fuel handling purposes there will be provided a steam hydraulic elevator, together with the necessary fuel charging barrows and a two-ton capacity platform scale.

An eight-foot U. G. I. four-pass high duty condenser will be installed to provide for the necessary condensing of the gas.

Other parts of the U. G. I. installation include one electric motor driven and one steam driven exhauster, each having daily capacity of 2400 M. cu. ft.; one U. G. I. safety seal; one U. G. I. tar extractor, with a daily capacity of 2400 M. cu. ft.; one rotary displacement meter, and one Connelly Governor, all with their necessary connections.

To provide steam equipment additional to the waste heat boiler, there will be installed a 125 horse-power horizontal return tubular coal fired boiler, together with the necessary feed water heater pumps and other boiler accessories.

Various steam driven pumps for water and oil are included in the contract, as well as the necessary piping.

The Connecticut Light and Power Company has entered into a contract

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The New AutomatiCook Book --- for which thousands of women have asked....

Hundreds of stove dealers have asked us for it. They felt that as makers of so famous an oven heat controller, we could produce the kind of a book the housewife needed. *Here* is the all-inclusive volume . . . A cook book that tells not only *what* to cook—but *how* to cook—how to prepare hundreds of appetizing, hunger-appeasing things in the surest, easiest way, with the AutomatiCook.

A special proposition for Gas Companies and Stove Dealers

This book carries a price mark of 50c. and compares well with independent publications selling for a dollar or more. We want you to know the special low prices that we have established for Gas Companies and Stove Dealers. Your signature on the coupon will bring this information promptly.

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Robertshaw Publicity in such magazines as the Ladies Home Journal and Good Housekeeping advertises this book to millions of housewives. Remember, many who send for it will not be AutomatiCook users, which means that this book is preparing a market for every manufacturer and seller of Gas Ranges equipped with AutomatiCook.

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ROBERTSHAW THERMOSTAT CO.
Youngwood, Pa.

Please send me complete data and special dealer's prices on the new AutomatiCook Book. I understand these prices cover only a part of the actual printing cost.

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with the U. G. I. Contracting Company, whereby the latter will furnish and install approximately 90,000 ft. of 12, 8 and 6 inch main from Meriden to Middletown, Conn., as well as 36,600 ft. of main and services in communities along the route.

Two other contracts taken in Connecticut involve the furnishing and laying of over 238,000 ft. of 16, 12 and 8 inch main.

This work will be done immediately following the completion of the Meriden-Middletown line.

The U. G. I. Contracting Company is furnishing a Model "B" automatic control to be installed at the Springfield, Ill., works of the Illinois Power Company.

Semet-Solvay Engineering Corporation to Construct Complete Motor Benzol Manufacturing Plant—Other Contracts Received

Hamilton, Ont.—The Hamilton By-Product Coke Ovens, Ltd., has contracted with the Semet-Solvay Engineering Corporation of New York for the immediate construction of a complete plant for the manufacture of motor benzol.

The Hamilton coke oven plant recently doubled its capacity, and at present is carbonizing about 1,000 tons of coal every 24 hours. The coal gas manufactured is consumed in Hamilton and vicinity by domestic and industrial users.

Motor benzol mixed with ordinary gasoline produces a very desirable anti-knock automobile fuel. The new process now being installed here will produce benzol from the light oil obtained in the process of making gas and coke. The plant will handle under ordinary operation about 3,000 gallons of light oil in 24 hours, although the installation will have a greater capacity to take care of future increase in demand.

The benzol plant, which will represent a total construction cost of approximately $400,000, will be built almost entirely of Canadian materials and will be erected by Canadian workmen. Design, supervision and field erection will be by the technical experts of the Semet-Solvay Engineering Corporation.

Three light oil scrubbers, with necessary piping and pumps, will comprise the first unit of the new plant. Gas from the final coolers will enter these scrubbers through a 20-inch steel main. The three scrubbers, through which the gas will be passed, will have an inside diameter of 8 feet and a height of about 78 feet. They will be built of steel plate and contain 60 feet of wooden grids. The oil in the gas will be recovered in these three columns and sent to the benzol distilling plant, while the gas will be delivered to the holder.

The acid washer to be installed at Hamilton will have a capacity of about 3,000 gallons per charge. The light oil storage tank holding 13,000 gallons, the boiler still of 7,000 gallons capacity, and two 16,000 gallon storage tanks for benzol will be among the items of construction. All tanks will be of steel plate construction. A thoroughly modern loading apparatus for delivering finished benzol into tank cars will be provided.

The electric wiring for the plant will present special problems. It must be vapor proof and installed in sherardized conduits. Steam power from the present plant will drive all machinery.

Hattiesburg, Miss.—Equipment for purifying and scrubbing gas has been ordered by the Dixie Construction Company, to be installed at Hattiesburg.

The construction program calls for a purifier, 10 x 24 x 10 feet, a washer cooler 2½ x 30 feet, and a Steere multiple washer.

All the equipment will be of welded steel construction of standard Steere design. The purifier will have two compartments and will be equipped with an 8-inch manifold containing six Steere gate valves.

The washer cooler will contain 20 feet of Steere wooden grids. The necessary number of Steere sherardized cooling coils will be installed.

The multiple washer will be built of one-quarter inch steel plate, and will be 2 x 4 x 3 ft. in size. The apparatus will take care of 500,000 cubic feet of gas in 24 hours under present operating requirements.

Far Rockaway, L. I.—The Semet-Solvay Engineering Corporation is installing a De-Emulsifier unit for the Queens Borough Gas and Electric Company. The equipment will remove the water from tar emulsion and produce a merchantable quality of tar. The installation is being rushed and is expected to go into service shortly.

The R. S. process of de-emulsifying and dehydrating tar uses a combination of pressure, heat and chemical reaction. Pressure is obtained by heating in a closed vessel. The unit consists of a horizontal, cylindrical pressure vessel above which is placed a solution tank. The apparatus will dehydrate tar to a 2 per cent water content, from a 65 per cent emulsion on a very economical basis.

Camden, N. J.—The Semet-Solvay Engineering Corporation is building a steel purifier for the Public Service Electric and Gas Company. It will be operated with two others now in regular service, to take care of increased output.

The purifier will be 25 x 32 x 14 feet and contain two compartments, each with two layers of trays for oxide. It will be of standard Steere welded construction. A gantry crane will be installed for handling the doors and an oxide elevator will be included in the handling equipment. The purifier will be connected to the plant system by a 20-inch manifold of welded steel.

Sulzer System for Dry Quenching Coke Acquired by International Combustion Engineering Corporation

New York, N. Y.—George E. Learnard, president of the International Combustion Engineering Corporation, has announced the acquisition from Sulzer Brothers, Winterthur, Switzerland, of the Sulzer System for dry quenching coke which will be developed in this country by a new subsidiary, Dry Quenching Equipment Corporation.

The Sulzer System is widely used in Europe for cooling coke without the use of water. Steam is produced for power and plant purposes during the cooling process, thus diverting to useful work the sensible heat of the coke, which is at present lost by wet quenching.

The first unit in America was installed by Sulzer Brothers for the Rochester Gas and Electric Corporation, where the equipment is exceeding the manufacturer's guarantee in daily operation.

The directors of the new corporation are: George E. Learnard, chairman; H. D. Savage, president; G. G. G. Hunter, vice-president; George H. Hanzel, treasurer; Hans Sulzer, of Winterthur, Switzerland; F. Oederlin, of Winterthur, Switzerland, and E. N. Goodwin, New York.

Walter Sennhauser, at present connected with Sulzer Brothers of Winterthur, will come to this country as chief engineer.

Conveyor Company Opens Offices in Philadelphia

The Atlas Conveyor Co., recently organized, has opened offices at 20 South Fifteenth Street, Philadelphia. Associated with this company will be Mr. Percival K. Reed, Mr. L. G. Weygandt and Mr. E. A. Thumlert, all of whom were formerly connected with the R. H. Beaumont Co., as chief engineer, Eastern sales manager and general manager, respectively.

The above company will design and build elevators, conveyors, skip hoists, coal weigh larries, cable drag scrapers, ash hoppers, gates and kindred equipment for the handling and storage of coal, coke, ashes and bulk materials.

"Andy Iron" Says—

"Some mean weather we've bin havin' lately. Reminds me when I wuz a kid. Knee high to a grasshopper, we had jist sich chilly days. Then's wuz when Dad would heave a log or two in the ole fireplace an' in three shakes of a lamb's tail the ole settin' room wuz as warm as toast an' all of us wuz feelin' meller an' cheerful.

"Can't beat the ole log fire for cheerfulness an' contentment unless it's a Homestead 'Woodfire.' They're the goldarndest, most natural lookin' logs ever I seen outside the real ones an' make a beautiful decoration for the fireplace. An' throws some heat, too, I want to tell y'u! But no smoke, dirt or ashes as Dad's fire. The hardest work is strikin' a match an' turnin' the gas cock."

Yours truly
Andy Iron

A Thing of Beauty and a Joy Forever

Barring the lowliest tenement houses, there's a wide field open for the sale of Homestead Fires—either "Woodfires" or "Coalfires," because they accommodate themselves to any environment and to any decorative scheme. They are, indeed, an exemplification of the old saying, "A thing of Beauty and a joy forever."

There is no question of their utility as heat producers. An abundance of clean, radiant heat always on tap, plus a fireplace decoration that will appeal to the most fastidious. Thus making them a potential source of revenue for the gas company the best part of the year.

Homestead "Woodfires" or "Coalfires" are appliances that the Commercial Managers can present as genuine novelties to their customers. They fill a long felt want. It requires only a demonstration to conclude a sale. The sooner you write for full information the sooner your profit begins.

Homestead "Coalfire"

Be sure and see these Homestead Fires in BOOTH 71 at the Chicago Convention

HOMESTEAD HEATER COMPANY, Inc.

Selvage Street and Fabyan Place WALTER KENNEDY, PRESIDENT **Newark, N. J., U. S. A.**

Western Gas Construction Co. Awarded Contract for High Pressure Tanks—Other Construction Activities

A contract for the construction of two high pressure tanks has been awarded the Western Gas Construction Company by the Public Service Company of Northern Illinois.

Each of the tanks is to deliver three hundred thousand (300,000) cu. ft. of gas between the limits of forty-five (45) pounds and zero (0) pound gauge pressure.

The tanks are to be cylindrical in shape with hemispherical heads, each tank thirty-nine (39) feet in diameter by ninety-seven (97) feet long.

Contract has been awarded by the Brooklyn Borough Gas Company of Coney Island for two additional "Western" automatic controls.

With these controls will also be installed two thermo controls which will maintain the heats in the carburetter and superheater within definite limits.

Safety blocks for all the hydraulically operated valves are also to be installed at this time.

With the completion of this installation all of the sets at this plant will be equipped with "Western" automatics, thermo controls and safety blocks.

Stevens & Wood, Inc., Engineers, have contracted with the Western Gas Construction Company for additional gas apparatus to be installed for the North Penn Gas Company at Roulette, Pa.

This equipment will consist of a nine (9) foot By-Pass Water Gas set, hydraulically operated, designed for exhaust steam and operated by a "Western" automatic control.

A checkered steel plate floor, stairway and railings for the new set, and necessary additions to the old floor will also be furnished.

The E. L. Phillips & Company, engineers for the Kings County Lighting Company of Brooklyn, N. Y., have recently contracted for a third Koppers type naphthalene scrubber, together with all the necessary pumps and auxiliary equipment.

This scrubber will have a capacity of twenty-four million (24,000,000) cu. ft. of gas per day. The steel shell will be eleven (11) foot diameter by sixty-five (65) foot high, electrically welded throughout.

Previous installations of naphthalene scrubbers have been made for the E. L. Phillips & Company by the Western Gas Construction Company at the Queensborough Gas and Electric Company, Rockaway Park, Long Island, and the Long Island Lighting Company, Bay Shore, Long Island.

Gas Machinery Company to Erect Purifiers at Ithaca—Other Contracts Awarded

The Gas Machinery Company of Cleveland, Ohio, have received an order to erect two 20-foot diameter purifiers and 16-inch connections in the gas plant at Ithaca, N. Y.

This will give the gas company a four box purifying system which will completely and economically take care of the removal of sulphur from the gas.

The City of Holyoke, Mass., has placed an order for a new eight-foot water gas generator and auxiliary equipment.

This generator will be placed along side of the 8-foot water gas equipment furnished by the Gas Machinery Company in Holyoke a few years ago and will insure the city a continuance of the good service they have always received in the past.

Changes in Position Caused by Creation of General Sales Department

A general sales department of the Philadelphia Company having been created by combining the commercial departments of the Duquesne Light Company, the Equitable Gas Company, together with the Equitable Sales Company, which operates the Gas and Electric Shops in Pittsburgh, a number of important changes in positions were made recently. The new department, which is headed by George E. Whitwell as general sales manager, is composed of five divisions, power and steam sales, industrial and commercial heating sales, sales engineering, retail sales, and rate.

Joseph McKinley heads the power and steam sales division and in the absence of the general sales manager acts in his stead.

Robert E. Polk heads the industrial and commercial heating sales division, which sells gas and electric service and appliances to industrial and commercial establishments where such service or appliance is used for heating purposes.

H. P. Smith becomes director of the rate division, the duties of which is to analyze cost of service and design profitable rates.

The retail sales division is divided into four parts, with Harvey A. Keys as vice-president and general manager of the Equitable Sales Company, which operates the Gas and Electric Shops. H. Levine is made manager of city retail sales; Felix H. Stone, manager of suburban retail sales, and Miss Karem J. Fladoes, home service director.

G. W. Ousler is director of the sales engineering division.

One of the important features of the reorganization is the formation of an executive sales committee composed of five directors and the assistant to the general sales manager, who is E. J. Stephany. The function of this committee is to co-ordinate all new business of the department. Mr. McKinley is chairman of this committee.

Frank H. Knapp Becomes Vice-President of National Refrigerating Co.

Frank H. Knapp has joined the executive organization of the National Refrigerating Company, affiliated with Winchester Repeating Arms Company, New Haven, Connecticut, as vice-president. Mr. Knapp recently resigned as vice-president of the Standard Gas Equipment Corporation.

Previous to Mr. Knapp's connection with the Standard Gas Equipment Corporation he was president and general manager of the Pittsburgh Water Heater Company. In 1916 he went to the Pittsburgh Water Heater Company as general manager. In 1918 he was made vice-president, and in 1920 president. Mr. Knapp was also president of the Gas Appliance Manufacturers' Exchange for three years and was a director of the American Gas Association for four years.

G. W. Keller, formerly assistant sales manager, has been made sales manager of the company under Mr. Knapp.

The National Refrigerating Company is one of the pioneers in the gas refrigeration field and after several years experimental and development work introduced the Ice-o-lator to the gas industry this year. The National Refrigerating Company has continued its development work actively and expects next year to have a complete line of gas refrigerators both for domestic and commercial use.

Peerless Heater Co. Reorganizes—Thomas King Named Vice-President

Boyertown, Pa.—For the last six months negotiations have been in progress looking to a change of ownership of the controlling stock of the Peerless Heater Company. These have been consummated and were put into effect August 1st. The new arrangement consolidates the selling and manufacturing activities of the company and greatly strengthens their position and ability to develop their business and serve their customers.

The general offices of the company have been moved from Pittsburgh to Boyertown, Pa., where Peerless boilers have been manufactured for the past

AMERICAN GAS JOURNAL
BOOTH No. 9
(*In the Ballroom*)

This will be our location during the Annual Convention of the American Gas Association to be held in the Stevens Hotel, Chicago, Ill., the week of October 10th.

We regret, that due to our inability to make satisfactory mechanical arrangements in Chicago, the American Gas Journal will not publish daily issues this year, as has been our usual custom during the past five years. The October issue will, however, be published in time to be distributed at the Convention.

We will have a corps of reporters on hand to cover thoroughly every meeting of the various sections and all other activities the same as heretofore. A most complete and comprehensive report of the entire proceedings will be published in the *November* issue of the American Gas Journal.

This will enable us to present to the industry with our customary thoroughness and in the most compact form, a full and detailed report of the 1927 meeting in *one single issue,* instead of in four daily issues, as in former years.

This will be the *first time* in the history of the gas industry that such a complete report of the Annual Meeting will be published in *one number* of a trade paper.

It is obvious then that this most important *November* issue will prove invaluable for reference purposes. You will want your announcement in that number. Reserve space at once.

Note:—

Due to the merging with the American Gas Journal of the Gas Industry Magazines (formerly of Buffalo, N. Y.), both Manufactured and Natural Gas Editions—both branches of the industry will be covered completely in every issue of the Journal.

Remember Booth No. 9
(In the Ballroom)

AMERICAN GAS JOURNAL
53 PARK PLACE, NEW YORK

three years. The new officers of the company are: Edwin M. Rhoads, president; Thomas King, vice-president; H. E. Gambrill, treasurer; B. W. Frederick, secretary.

Edwin M. Rhoads, president, is also president of the Eastern Foundry, and has had an active and successful business experience with this company and other companies engaged in the foundry and manufacturing business.

Thomson King has had a long experience in gas work, both with the public utilities and the manufacturer of gas appliances.

H. E. Gambrill has been secretary-treasurer of the Peerless Heater Company for the past sixten years, and in addition to his other duties has been manager of the coal boiler department.

P. W. Frederick is vice-president of the Eastern Foundry Company and has had a long experience with this company and other companies both in the manufacturing and selling of heating appliances and material.

The company is now established in its new offices at Boyertown, and is operating under the new management.

New Chaplin-Fulton Plant Being Built

A contract has been let and plans announced by Chaplin-Fulton Manufacturing Company, of Pittsburgh, Pa., for a new four-story plant and office building at 38-40 Penn Avenue. Mr. Wm. McKee, president of the company, states that the building will be started at once and will be in use by January 1. The new plant will be located on property adjoining the present factory. In addition to the new structure, a full story will be added to the entire present plant.

During construction there will be no interference with production, and when the work is completed the company will have a 100 per cent increase in capacity. This building program has been necessitated by a steadily growing volume of business. It will enable Chaplin-Fulton to make more prompt deliveries than have been possible for the last few years, during which time their production facilities have been constantly taxed to capacity.

Valve Company Chartered

Albany, N. Y.—Gas Mixing Valve Corporation, New York City, has been chartered at Albany with stated capital of 1,500 shares no par value stock, to manufacture metal valves. William D. Rawlins, Jr., M. White and H. C. Peed, 110 East 42nd Street, New York City, are directors and subscribers. Clarence McMillan, 110 East 42nd Street, New York City, is attorney for the corporation.

$10,000 For Plant Improvements

D. A. Curtis, president; M. E. Young, vice-president and general manager, and J. M. McIntyre, assistant general manager of the New York Oil Company, servitors of natural gas to the city of Rock Springs, Wyoming, the gas being piped from the Baxter Basin field, made an inspection of its plant and ordered improvements that will cost about $10,000.

Cleveland Hotel Demonstrates Another Use for Gas

The gas-fired steam boiler has again demonstrated its versatility of application in a recent installation for hotel use. The immediate response of gas to regulation makes it ideal for producing the instant hot water necessary in a hotel kitchen.

When the new Allerton Club residence in Cleveland was being built it was desired to eliminate any heat producing installations which would involve fuel storage or stoking. Steam for heating the hotel was secured from the municipal plant, but a large Bryant gas-fired boiler was installed to furnish the high-pressure steam for the steam tables in the hotel kitchen. Were a hand controlled heating plant to be used to meet the Allerton's kitchen demands it would entail a larger staff and less convenience all around.

Seeks to Continue Manufacture of Gas from Illinois Coal

Springfield, Ill.—Illinois coal produces gas equal, if not superior to that from coal mined in eastern states, is the claim being presented by the Western United Gas and Electric Company to the Illinois Commerce Commission.

This claim results from nearly two years of experiments by the Western United Gas & Electric Company, serving practically 70,000 consumers in northern Illinois. In addition the company declares that if permitted to continue the use of Illinois coal for gas production it will mean additional prosperity to Illinois coal mines by the sale of practically two and one-half million tons of coal annually.

Industrial Gas Salesmen's Book to Be Published September 1

The book for industrial gas salesmen, titled "The Industrial Gas Salesman," which is being sponsored by the Industrial Gas Section Committee on Education of Salesmen, J. P. Leinroth, chairman, and written by Prof. Elmer E. Ferris, professor of salesmanship, New York University, School of Commerce, Accounts and Finance, will be published on or about September 1.

The book will contain more than 100 pages and will be attractively printed and bound. The price of the book will be $1.50 to members of the American Gas Association and $3 to non-members.

There is every reason to believe that this book will be of real help to the men engaged in selling gas for industrial purposes, according to Alexander Forward, managing director of the American Gas Association.

"Professor Ferris has had much practical experience in sales work," says Mr. Forward. "He has been a traveling salesman for fourteen years, and a sales manager for six. He has also spent ten years writing and lecturing on sales topics, and has been professor of salesmanship at New York University for seven years."

Professor Ferris has sold two different staple lines and one high-grade specialty. He has sold to the jobbing trade, the retail trade and the large consumer. Among his business connections are the following: Salesman and sales manager, Phenix Cheese Co.; salesman, sales manager and vice-president, Calumet Tea and Coffee Co.; salesman and sales coach, Alexander Hamilton Institute.

He has also lectured before numerous sales conventions and conferences, such as the New York Edison Co., International Silver Co., Drugs Products Co., Printers' Association, American Gas Association, International Mercantile Marine, etc.

Professor Ferris is the author of several widely used books on salesmanship and sales topics.

Orders for "The Industrial Gas Salesman" can now be entered at headquarters of the American Gas Association, 420 Lexington Avenue, New York.

Summer Outing of the New Jersey Gas Association to Be Held at Bridgeton

On Wednesday, September 14th, the New Jersey Gas Association will hold its summer outing at the Cohanzick Country Club, Bridgeton, New Jersey.

There will be various sports and games for prizes, a chicken and ham dinner, and other features.

"YOU'VE GOT TO HAVE STEAM TO HEAT HER

so why not have these SAFE and SURE RIDGWAY ELEVATORS,"

is what the General Superintendent told the Architect when they were discussing the elevators for the New Factory.

"In summer you don't have steam," said the Architect.

"Then we will go ahead with compressed air and still have the perfect Ridgway Elevator service."

"But there is a loss in compressing air."

"Yes," said the supt., "and there is a 50 per cent and more loss in the worm and wheel of the electric elevator engine. That's why it don't run down and kill somebody when the brake fails."

RIDGWAY ELEVATORS WERE ADOPTED AND THE NEW FACTORY WAS A MONEY MAKER FROM THE START.

In the same town was another factory making the same goods.

He tried to interest the "Engineer of Construction" in the Ridgway Elevators for the New Plant.

Said the Engineer: "If it isn't electrical it isn't modern."

Said Ridgway: **"IF IT ISN'T SAFE IT ISN'T MODERN"** and we pointed to the "Safety First" signs all over the place.

THIS "ELECTRIC CRAZY" CONCERN WENT BANKRUPT

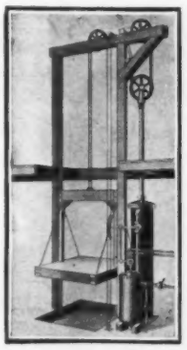
And on this day of May, 1927, the morning papers has an account of New York bankers trying to put it on its feet.

Say Old Fellow—don't let 'em fool you—You got the greatest elevator the world has ever seen, when you

"HOOK 'ER TO THE BILER"

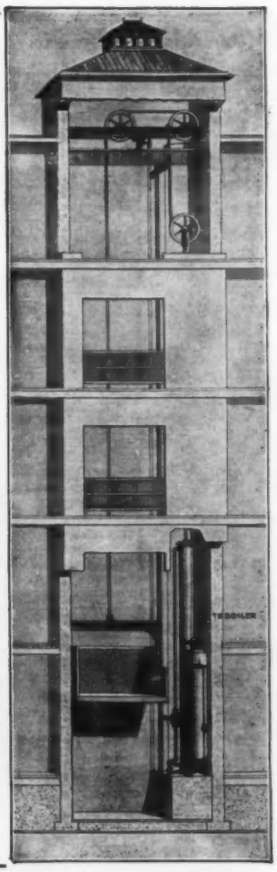
Craig Ridgway & Son Co.

Over 3,000 in daily use. **COATESVILLE, PA.**



Double Geared

Direct Acting



SUPERIOR

Gas Meters
Provers
Service
Cleaners
Diaphragms

SUPERIOR METER CO.
167 - 41st Street
Brooklyn, N. Y.

FEEL BRISK—
ENJOY LIFE!
Q. Health authorities state Radiant Heat is invigorating and helps prevent colds, catarrh, pneumonia, etc.
RAY-GLO
Radiant Heaters
ASK FOR BOOKLET DESCRIBING HOW NATURE'S HEAT PROMOTES HEALTH, PREVENTS DISEASE
WARM FEET
COOL HEADS
Let in fresh air but keep the feet and ankles warm with direct Radiant Heat
That's Nature's way of keeping well
RAY-GLO
Radiant Heaters
ASK for Booklet Describing How Nature's Heat Promotes Health, Prevents Disease
BRING BACK
JUNE'S MAGIC
Radiant Heat and Fresh Air reproduce the health-giving sun heat of a day in June.
RAY-GLO
Radiant Heaters
ASK for BOOKLET "NATURE'S HEAT IN THE HOME FIRES"

Let's Tell People
What *Radiant* Heat Will Do for *Them!*

HEALTH authorities and experts on heating and ventilating have become the best salesmen for radiant gas heaters. They point to the basic difference between dark and stagnant heat from steam pipes and the luminous, *live* heat of glowing radiants.

Here is a ripe opportunity. Tell the public—"Open your window when you feel stuffy. The direct, intense heat of a RAY-GLO warms the feet while you cool the atmosphere around the head with fresher air. You can bring into your home the sun-warmed freshness of a June day."

That is one of the attractive reasons for the RAY-GLO with its intense incandescence, its short, high-temperature flame, its complete freedom from all air or gas adjustments.

RAY-GLO heaters have, from the first, been built by radiant heater specialists who have believed in the benefits of radiant heat, its great future in the scheme of modern home heating. That time is here. A great market for *high quality* heaters is waiting on this knowledge which the gas industry should now make public.

THE J. H. GRAYSON MFG. CO., Athens, Ohio

We will gladly send a full report on this subject, compiled from eminent authorities, to gas companies interested in extending auxiliary gas heating.

RAY-GLO
REG. U.S. PAT. OFF.
Radiant Heaters

EVERY RADIANT HEATER AVERAGES 20,000 CUBIC FEET OF GAS CONSUMED EACH YEAR

JEWEL STOVES AND FURNACES
DETROIT STOVE WORKS
LARGEST STOVE PLANT IN THE WORLD

JEWETT

MAGEE

Monarch MALLEABLE

YORK ARENDROTH

ERIEZ

SUMMIT STOVES RANGES FURNACES

PEERLESS

T TAPPAN

SPARK

RED CROSS RANGES & FURNACES

Crawford Gas Ranges

ANDES

Paramount MALLEABLE

WHERE is the woman who does not yearn for the conveniences afforded by a gas range equipped with a modern oven heat control? She simply doesn't exist.

Think of the merchandising possibilities here and then follow the history of the Wilcolator which is today the standard oven heat control on over 90 makes of gas ranges.

Wilcolator on your gas range is a sales asset that builds increasing good will with years of service.

Ask us to send you bulletin No. 202 for details.

The Wilcolator Company

17-23 Nevada Street **Newark, N. J.**

W I L C O L A T O R

OVEN HEAT CONTROL

STYLE B

(*Actual Size*)

Interchangeable with heat control.

FEATURES

of New Styles A and B

Shows actual Fahrenheit degrees.

Quick-acting thermostatic metal registers correct temperature immediately.

Extreme heat cannot injure or make the thermometer inaccurate.

Style B interchangeable with heat controls.

Carefully calibrated.

Porcelain enamel dials in two colors.

Accuracy guaranteed for the life of the oven.

No glass or mica to get broken.

Economical in price.

Handsome in appearance, add greatly to the looks of any oven.

The Cooper Oven Thermometer

is becoming essential Standard Equipment for Every Gas Range

We have valuable information showing the influence of Cooper Oven Thermometers on the sale of Ranges which we will be glad to place at the disposal of any gas company or manufacturer.

Gasmen of today are rapidly discovering what the automobile builder discovered a few years ago. The accessories are essential to selling the car. What were extras last year are standard equipment now.

Regardless of other thermostatic control—a thermometer is the only true indicator of heat.

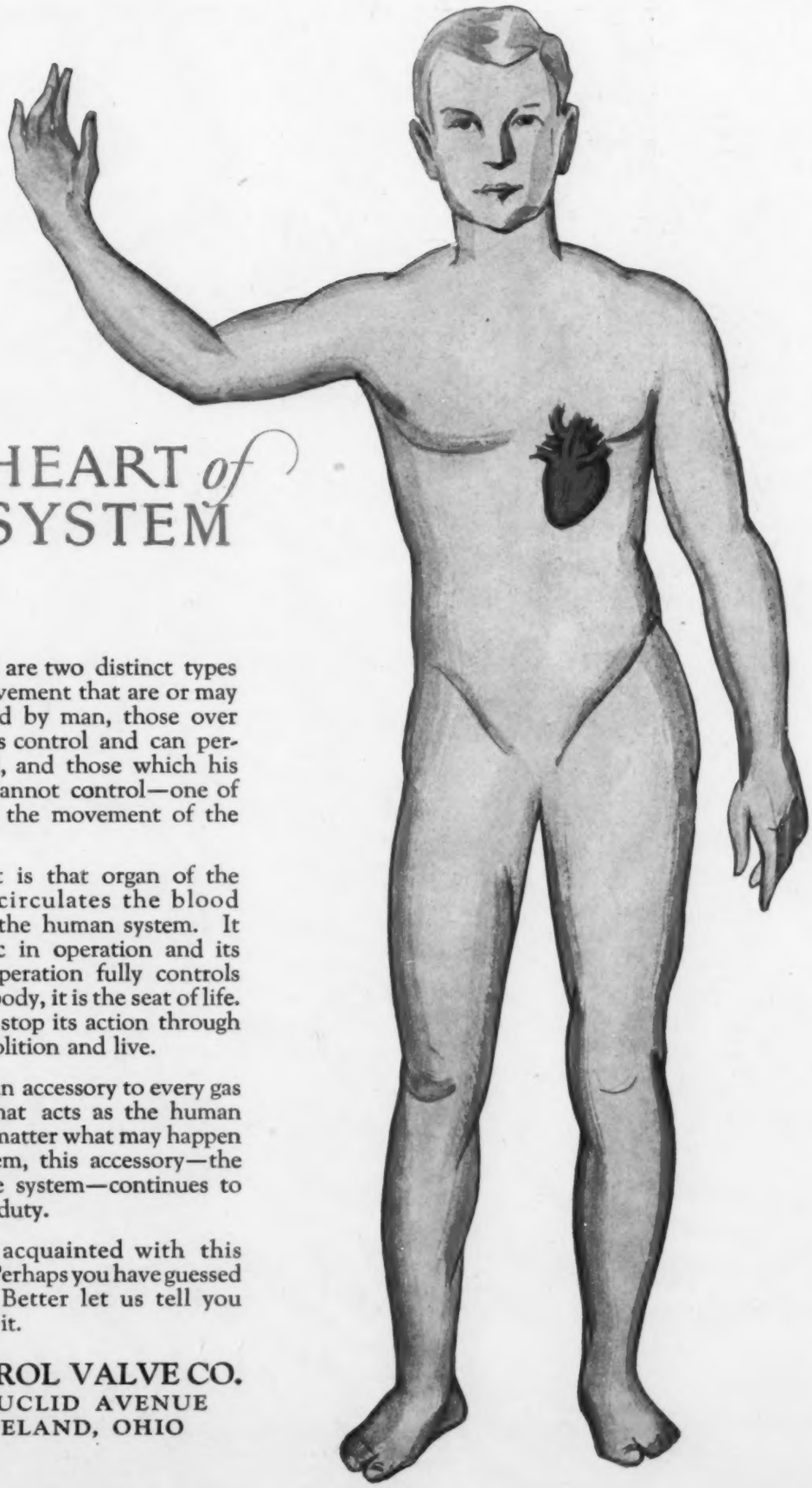
The Cooper Oven Thermometer

is the speedometer of the Gas Range—and just as essential. Regardless of other heat controls, an accurate indication of oven heat is essential to the intelligent handling of any gas range—and sooner or later every woman finds it out.

THE COOPER OVEN THERMOMETER CO.

Established 1895

4 MAIN ST. **PEQUABUCK, CONN.**



The HEART of the SYSTEM

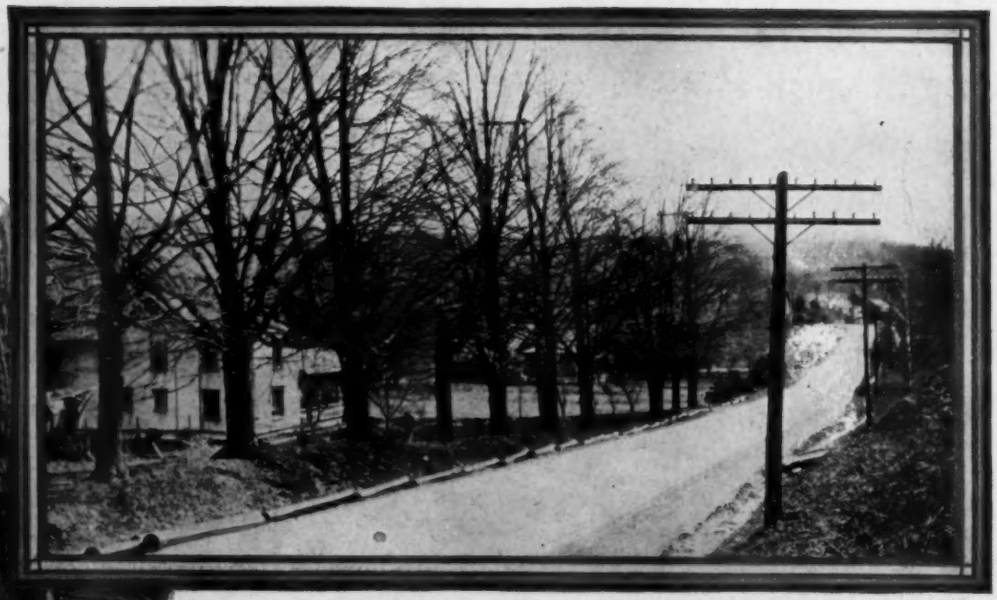
THERE are two distinct types of movement that are or may be performed by man, those over which he has control and can perform at will, and those which his will-power cannot control—one of the latter is the movement of the heart.

The heart is that organ of the body that circulates the blood throughout the human system. It is automatic in operation and its automatic operation fully controls the human body, it is the seat of life. You cannot stop its action through your own volition and live.

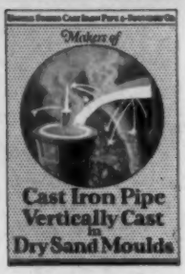
There is an accessory to every gas appliance that acts as the human heart. No matter what may happen to the system, this accessory—the heart of the system—continues to perform its duty.

Are you acquainted with this accessory? Perhaps you have guessed its name. Better let us tell you more about it.

The PATROL VALVE CO.
1501 EUCLID AVENUE
CLEVELAND, OHIO



deLavaud centrifugal pipe at Orchard Park, New York



deLavaud Centrifugal Cast Iron Pipe *costs less to lay*

CONTRACTORS have learned by experience the decided saving in handling and laying deLavaud centrifugal pipe.

Its lighter weight and self-centering bell make the actual handling much easier.

Experienced contractors are therefore able to make lower bids, which in some installations average 8% below other pipe.

Engineers and contractors are invited to write for further details. They will be of great assistance in figuring on bids for installations.

United States Cast Iron Pipe and Foundry Company

SALES OFFICES

Philadelphia: 1421 Chestnut St.
Chicago: 122 So. Michigan Blvd.
Birmingham: 1st Ave. & 20th St.
Buffalo: 957 East Ferry Street
Cleveland: 1150 East 26th Street
New York: 71 Broadway
San Francisco: 3rd & Market Sts.
Pittsburgh: 6th & Smithfield Sts.
Dallas: Akard & Commerce Sts.
Kansas City: 13th & Locust Sts.
Minneapolis: 6th St. & Hennepin Ave.

General Offices:
Burlington, New Jersey

These four months

{when everybody is thinking about better heating}

Ideal Gas Boilers are being Nationally Advertised!

FROM AUGUST THROUGH NOVEMBER! New boilers are going into new homes—in older houses men are tired of furnace labor, are looking for better heating systems. Everybody is a prospective customer these months.

What a choice everybody has! Better coal boilers and fine oil burners are both more familiar than GAS boilers—yet *you* want to sell them GAS house-heating!

The best way to *sell* GAS for house-heating is to *tell* them about it! That's what Ideal Gas Boiler advertising is doing—telling millions of the best prospects the advantages of house-heating with gas, and the service available through their local gas company.

You can pyramid this advantage with vigorous newspaper ads, direct-mail literature, and personal salesmanship. An effective and practical local advertising plan is available on request.

Covering the great national market

These two magazines will carry Ideal Gas Boiler advertising this year.

House and Garden's circulation of over 125,000 consists exclusively of keenly interested home owners and home planners. National Geographic has a circulation of over a million—the most prosperous and progressive people in every city.

Full pages will be used, a dominating size! Three full pages in each magazine, covering August to November intensively! This is advertising that *you* can use to advantage.

IDEAL GAS BOILERS

Product of AMERICAN RADIATOR COMPANY

American Gas Products Corp. *Distributor* **376 Lafayette Street, New York**

Savings *by* Smith

The A. O. Smith method of manufacturing makes it possible to produce 30 ft. lengths in diameters of 16 in. to 22 in., all of uniform length, diameter and thicknesses.

Fewer Joints

Smithsteel Pipe is made plain end and plain end beveled for any field joint. The 30-foot lengths of Smithsteel Pipe will require only 175 joints to the mile as compared with 262 needed for the usual 20-foot lengths of pipe.

Jointing Simpler

Smithsteel Pipe is accurate in both outside and inside diameters. The wall thicknesses are uniform. The joints will butt up evenly at all points making alignment and either welding or coupling simpler and surer. Joining will therefore be quicker and easier.

The Use of Less Metal

Due to the A. O. Smith method of fabricating and the high quality steel, less metal can be used in the body of the pipe.

Saving the Cost of 87 Joints Every Mile

Smithsteel Gas Line Pipe is made in 16 to 22 inch outside diameters—plain end or plain end beveled for any field joint.

It is made in uniform lengths of 30 feet. The 30 foot lengths will require only 175 joints to the mile as compared with 262 joints needed for the usual 20 foot lengths.

Smithsteel Gas Line Pipe has no random lengths and no untrue diameters. The pipe is accurate in both outside and inside diameters. The wall thickness is uniform (to any specification desired). The joints will butt up evenly at all points making alignment and either welding or coupling quicker and easier.

Other savings possible with this modern product are dealt with in the left-hand column.

A. O. SMITH CORPORATION, *Milwaukee, Wisconsin*
Oil Field Products Division Los Angeles

SMITHSTEEL
GAS LINE PIPE

PRECALKED JOINT GAS MAINS

If You Use Lead Joints—

The McWane Joint relieves you of yarning, lead pot, melting, pouring, and much of the calking.

It is a lead-and-jute joint, delivered to you in the pipe bells, ready to calk.

It enables you to lay pipe three times as fast as the ordinary kind, for half the labor. Gas-tight under all ordinary low pressures.

If You Use Other Than Lead Joints—

We can offer you a very high grade cast iron pipe, in standard lengths and at a low price per foot.

In the following types:

Bell and Spigot.

Plain Ends for welding or couplings.

McWane screw joints in the smaller sizes, guaranteed to hold 100 lbs. gas pressure.

Write for full details.

Pipe sizes: 1¼ through 8 inches.

McWANE CAST IRON PIPE CO.

BIRMINGHAM, ALA.

819 Bankers Trust Bldg., Philadelphia, Pa.

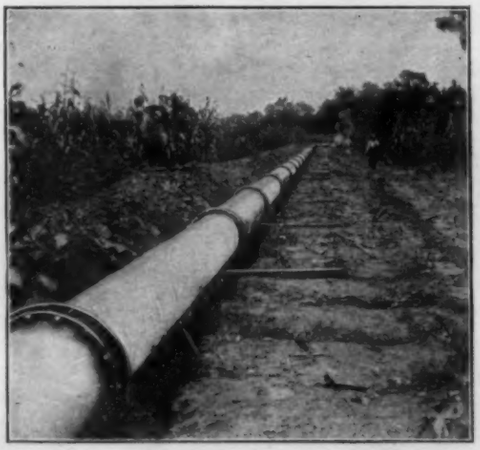
DISTRICT OFFICES:

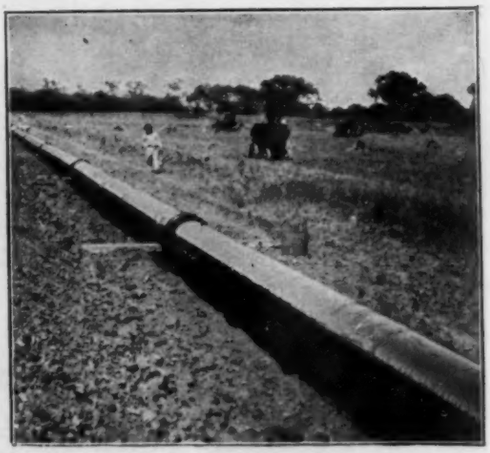
206 S. LaSalle St., Chicago, Ill.

1807 Santa Fe Bldg. Dallas, Texas.

PACIFIC STATES CAST IRON PIPE CO., Provo, Utah
608 Subway Terminal Building, Los Angeles, Calif.
611 Spalding Bldg., Portland, Oregon
149 West Second South, Salt Lake City, Utah

Investigated and Selected for the World's Largest Natural Gas Lines





The Interstate Line which runs between Monroe, La., and Baton Rouge, La., and the Cities Service Company's new Empire Line now being laid for 250 miles between the Texas Panhandle and Wichita, Kan., are the two largest natural gas lines in the world. Extensive investigations conducted by the engineers in charge resulted in adoption of BITUMASTIC ENAMEL for protecting 85 miles of the 22″ pipe used in the Interstate Line and for protecting the entire 250 miles of 20″ pipe used in the Empire Line. The coating for the latter line will require 120 carloads of 40,000 lbs. each.

BITUMASTIC
REG. U.S. PAT. OFF.
ENAMEL

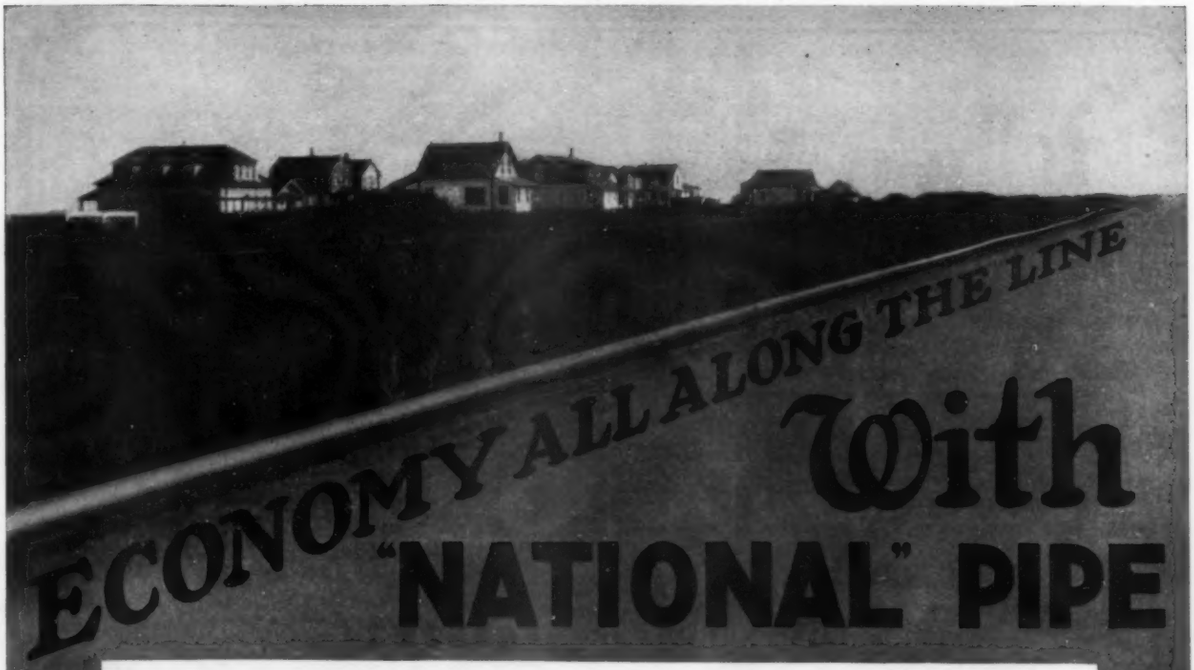
As recently as ten years back many of the largest oil and gas companies believed that their underground pipe lines would not suffer seriously from electrolysis or corrosion. This proved a costly conclusion, for many of these lines have since been lifted and replaced or relaid.

The extent of this unnecessary damage and the magnitude of the expense involved are indicated by the fact that engineers are now conducting exhaustive investigations to determine the best means for protecting these lines against corrosion. It is, therefore, significant that the largest lines in the world, as well as many smaller lines, have selected BITUMASTIC ENAMEL.

These lines, to be sure, are operating at pressures in excess of 300 lbs. where protection of the full strength of the pipe is absolutely essential. But pressures are also increasing in the distribution of manufactured gas and it is, therefore, equally important to preserve the full strength of these smaller lines by the use of BITUMASTIC ENAMEL—the best and most durable pipe coating obtainable.

Write for our complete book—
"The Protection of Pipe Lines"

Wailes Dove-Hermiston Corporation
Whitehall Building, New York
Philadelphia Cleveland Chicago Tulsa San Francisco



ECONOMY ALL ALONG THE LINE With "NATIONAL" PIPE

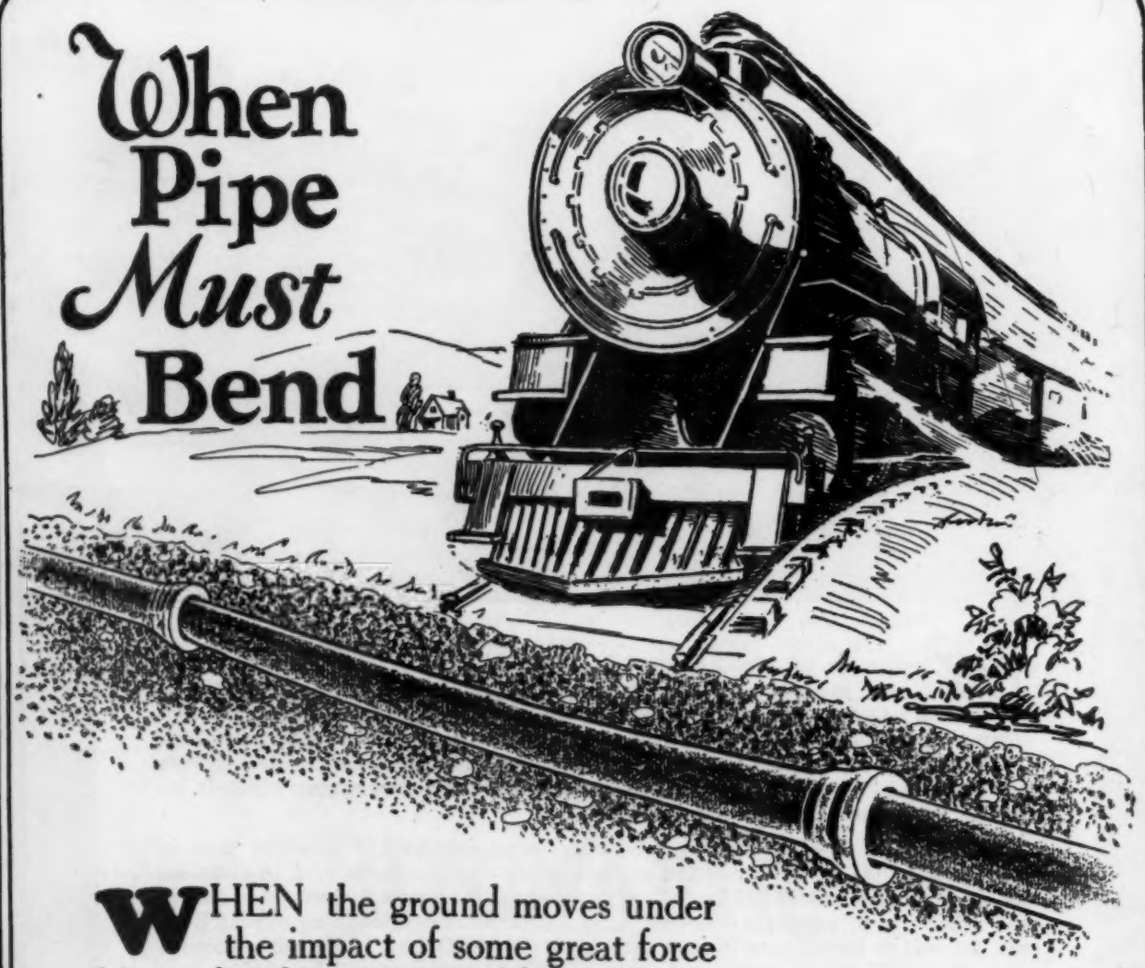
EASY to handle, adaptable for welding, ductile for trenching, strength for reliability, resistant to corrosion, and double lengths for saving time, materials and labor in joint making—these are some of the factors taken into consideration by a New Jersey power and light company in the laying of this 6-inch "NATIONAL" Pipe line along the Atlantic coast. For "NATIONAL" Pipe has proved, by such typical examples as this, that the advantages which it includes, spell economy all along the line.

"NATIONAL" Pipe is made by the largest manufacturer of wrought pipe in the world, by skilled workmen and modern mechanical methods, and, in addition, passes through a system of inspection and tests that assures the utmost economy and reliability in service. Gas companies contemplating the laying of long lines will do well to investigate the advantages of "NATIONAL" Pipe when considering the problems of service and economy. Our engineers will be glad to furnish further information and to cooperate with those interested. Ask for Bulletin No. 26.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

DISTRICT SALES OFFICES IN THE LARGER CITIES

When Pipe *Must* Bend



WHEN the ground moves under the impact of some great force like a freight train rumbling over a grade crossing, the only hope for pipe is to **yield.** Under such conditions ability of MONO-CAST centrifugal pipe to bend is great. Mono-cast pipe also has great ability to resist impact, shock and water hammer.

Send for book on MONO-CAST PIPE which explains its advantages and saving

MONO CAST PIPE—

Is free from casting strains.
Has greater ability to bend and to resist bending.
Has more endurance against impact and shock.
Is uniform in wall thickness.
Is 16 feet long.
Is Bell and Spigot with Bead cast on.

AMERICAN CAST IRON PIPE COMPANY
BIRMINGHAM, ALA.

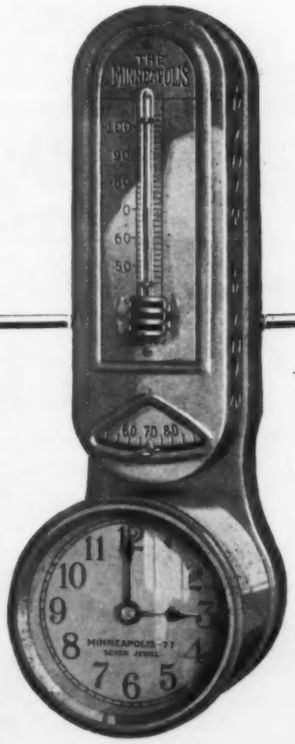
ACIPCO MONO-CAST CENTRIFUGAL PIPE
BELL AND SPIGOT

To Gas Company Executives

who contemplate entering the gas heating field

One of the principal reasons for the growing popularity of gas heating is the fact that it lends itself so readily to completely automatic regulation. Today nobody doubts the ability of gas companies to merchandise such features and establish volume business in the heating field. But with this growth have come puzzling economic problems. What will be the maximum demand? If equipment is provided to meet it, can the rate be high enough to yield a profit and still low enough to encourage sales?

Automatic heat regulator is not only an outstanding merchandising feature—it also bears a vital relationship to the economics of gas heating.



If you have not realized how closely automatic control is related to this economic side of gas heating, the Minneapolis Heat Regulator Company will take pleasure in presenting interesting facts about the function of Minneapolis controls in minimizing peak loads and improving the annual load factor. This information is offered purely as an aid in studying the larger aspects of your problem, as few merchandising departments would undertake a gas heating program without including the Minneapolis as a prominent sales feature. May we hear from you?

408 E. 28th St., Minneapolis, Minn.

The "MINNEAPOLIS" HEAT REGULATOR

Minneapolis Limit Control. A safety device for furnace or boiler, providing protection against excessive temperatures or pressures.

Minneapolis Magnetic Gas Valve

Minneapolis Electric Motor, universally applicable to all types of boilers, furnaces, and conversion burners.

Repair in the Modern Way

Retorts, Jamb Joints, Furnace Walls, Arches and Baffles Should Be Repaired With the

QUIGLEY GUN

The Quigley Refractory Gun fills cracks, repairs retorts, jamb joints of coke ovens, furnace walls, arches, baffles, etc.
It shoots the plastic mixture with great velocity so that it sticks, where hand troweled or rammed-in applications might fail to hold.
The Quigley Gun also makes hot patches.

Shooting Hytempite into Jamb Joint with the Quigley Refractory Gun.

HYTEMPITE

(Reg. U. S. Pat. Off.)

HYTEMPITE is used by hundreds of Gas Companies for laying up firebrick, (and when mixed with crushed old firebrick or Ganisand) for patching and repairing refractory linings, making special shapes and tile, etc.

The mixture of Hytempite and crushed old firebrick applied to wall or joint with the Quigley Gun makes certain an everlasting gas tight surface.

Keep a drum of Hytempite in the retort house or Boiler Room for quick repairs

QUIGLEY FURNACE SPECIALTIES CO., Inc.

26 CORTLANDT STREET NEW YORK

Quick Service from Stock in Every Industrial Center

Built for Service

G-515

Lock Wing Iron Body Gas Cock with Brass Key, Brass Nut and Washer.

Sizes ¼", 1", 1¼", 1½" and 2"

Furnished With or Without Lock Wing Attachment

Write for Prices

KITSON COMPANY

Philadelphia

Commercial Heating With Clow Gasteam—

BRINGING THE DAY'S VALLEYS UP TO THE PEAKS

Commercial Heating with Clow Gasteam Radiators will bring up your daily off-peak load.

The Heating load for Gasteam Radiators in stores, offices, shops and factories, does not come on until the "breakfast" peak is over. And the Gasteam load is largely off before the evening peak is at its height.

This type of heating load pulls the "valleys" up towards the "peaks"—maintaining a more even consumption of gas throughout the day.

Clow Gasteam Radiators are completely approved by the A. G. A. Testing Laboratories.

A new catalog illustrating the application of Clow Gasteam Radiators for all types of buildings in all parts of the country is now ready. We will be glad to send you a copy.

HOW it's done by CLOW

Clow Gas. am Radiators supply *real* steam heat, with all its advantages and none of the difficulties.

Because Clow burners are enclosed, the fire hazard is eliminated. Clow Radiators are approved by the Underwriters' Laboratories.

Little or no servicing is required on Clow Gasteam Radiators. They are solidly built, permanently attached, and cannot be accidentally upset.

Clow Radiators spread heat over a large area, as is necessary in almost all cases of commercial heating, rather than intense heat immediately surrounding the radiator.

Clow has been building Gasteam Radiators for 20 years. The annual sales are now bringing more than a billion cubic feet of *new* heating load to the gas companies each year.

Warehouse stocks are maintained at 21 distributing points.

The Clow Vented Radiators end the moisture problem that has held back gas heating in many sections of the country.

Our new Clow Gasteam Vented Catalog should be read by officials of Gas Companies, architects, steam fitters, plumbers and others interested in the proper venting of any gas appliance.

Write for your copy today.

JAMES B. CLOW & SONS
201-299 North Talman Avenue, Chicago

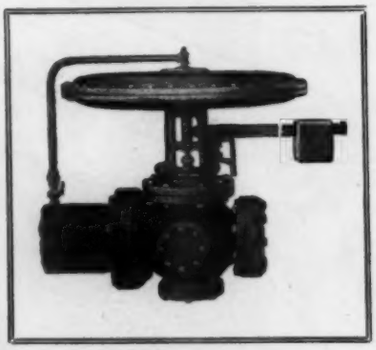
The most complete approval and lines.

43 styles, models and sizes of Clow Gasteam are approved by the A. G. A. and Underwriters' Laboratories.

CLOW GASTEAM

STOCKED IN EVERY SECTION OF THE COUNTRY

Efficient Regulation



The Fulton
Low Pressure Regulator

Efficient regulation depends upon the accuracy of the regulation equipment. For 35 years the Chaplin-Fulton Manufacturing Company has made regulating devices for the gas industry. That the aim to make the most accurate and reliable equipment possible has been reflected in the Chaplin-Fulton series of regulators, is evidenced by their popularity and standing with the foremost gas companies.

For an investment in efficient regulation, the following Chaplin-Fulton Regulators offer you the most that can be built into devices for these purposes.

High Pressure Regulators
Low Pressure Regulators
House Regulators
Illuminating or Dead Weight House Regulators
House Service Regulators—Spring Style
High Pressure Spring Regulators
Little Hercules High Pressure Regulators
Gas-Fuel Boiler Governors
Gas Relief Valves
Duplex Sensitive Gas Governors
Back or Check Pressure Regulators

Write for information and catalogues.

The Chaplin-Fulton Mfg. Co.

28-36 Penn Avenue Pittsburgh, Pa.

EMCO Meters

are Cast Iron

They are rugged in construction and designed to withstand rough treatment.

Iron meters are so simple to repair and adjust that even small gas companies can afford to make their own repairs. Necessary state or municipal tests can be made right under the company's control.

In case of fire, it is possible to shut off the flow of gas, with the meter on the outside, and the meter will not be destroyed. In this connection, EMCO iron meters are the only iron meters approved by the Board of Fire Underwriters.

They cannot be tampered with, without destroying the seals or leaving some visible mark on the exterior of the case.

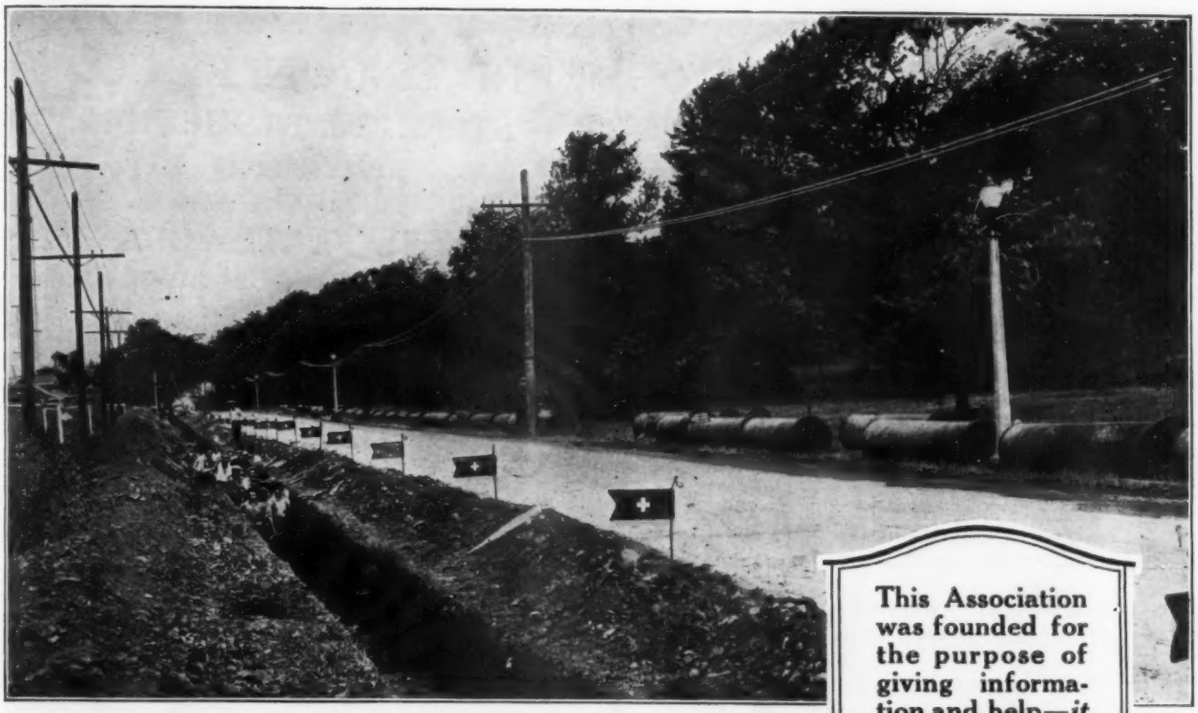
Iron meters require no supports and they have no soldered joints to open up if pipe lines should sag.

They will stand pressures up to 25 pounds without special construction.

Pittsburgh Equitable Meter Co.

PITTSBURGH, PA.

Chicago	Los Angeles	Tulsa
New York	Salt Lake City	Seattle
Dallas	Kansas City	Columbia



100 years from today!

Some engineer, not yet born, will know every detail of this installation simply by glancing at the blueprints, because Cast Iron Pipe and its fittings will be as STANDARD then as they have been for the past 100 years

THE life of Cast Iron Pipe mains has never yet been determined, as there is no case on record where Cast Iron Pipe has failed under usual service conditions.

For this reason it has been necessary to standardize Cast Iron Pipe and fittings.

The engineer never has to have a Cast Iron Pipe line uncovered for examination as to dimensions. His office records show all the information he needs.

This Association was founded for the purpose of giving information and help—*it has nothing to sell.*

Its primary interest is the collection and distribution of all information relative to Cast Iron Pipe for all purposes—and in arousing public interest in waterworks construction.

Consulting engineers, contractors and municipal officials are invited to write.

Of especial importance is an article on the "two mains system." Write to the Research Engineer for a copy of this or other literature on the subject of water systems which may be interesting to you.

BELL *and* SPIGOT JOINT—*the accepted standard for underground construction.*

THE CAST IRON PIPE RESEARCH ASSOCIATION
People's Gas Building, Chicago, Ill.

CAST IRON PIPE

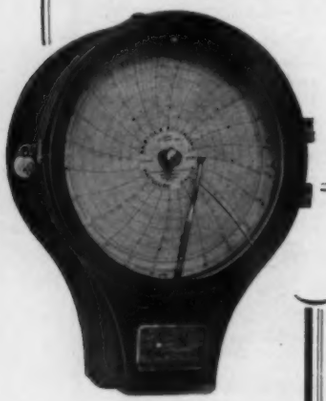
—In continuous service for over 250 years

Increased Distribution Necessitates a Careful Check of Pressures

With the demand for gas increasing constantly, the problem of efficient gas distribution with satisfactory service for all consumers becomes a very difficult one. Particularly during peak load periods it is absolutely necessary for the engineer to know the pressure going out and the pressure in the system itself.

Bristol's Recording Pressure Gauges placed at strategic points in the system render the operator invaluable aid in keeping distribution at sufficient pressure at all points of the line. The recording gauges show the pressure not only at the present time, but they tell what it has been, and indicate the direction in which it is heading. With such a record the attendant is able to control conditions to a high degree of efficiency.

Where Bristol's are employed production may be maintained at a uniform rate. Readings are always dependable, for the mechanism is extremely simple —there is nothing to get out of order.



Consult Our Engineers on Pressure Problems

The Bristol Company *Waterbury, Connecticut*

FOR 38 YEARS — MAKERS OF — BRISTOL'S — RECORDING — INSTRUMENTS

RITER-CONLEY CO.

STEEL CONSTRUCTION

PITTSBURGH

STEEL PLATEWORK

FOR

THE GAS INDUSTRY

Gas Holders
Pressure Tanks
Steel Pipe
Steel Barges
Oil Tanks
Purifiers

BRANCH OFFICES

New York — Boston — Baltimore
Chicago — Philadelphia — Detroit
Cleveland — Cincinnati — Seattle
San Francisco — Los Angeles

LEADING GAS COMPANIES USE LAMBERT METERS

All sizes up to 3,400 cu. ft. capacity

Meters
Diaphragms
Repairs
Provers
Pumps
Calorimeters
Wet Meters
Gauges
Apparatus

LAMBERT METER CO.

BUSH TERM. BLDG. A, BROOKLYN, N. Y.

BAROMETERS

PHILADELPHIA, THE WORKSHOP OF THE WORLD, has 14,000 Manufacturing Establishments of which many have World-Wide Reputations.

"PRINCO" STANDARD FORTIN MERCURIAL BAROMETERS

are in World-Wide use because they, too, have a "World-Wide Reputation"

THEY ARE GOOD BAROMETERS

They are reasonable in price!

For more than a decade they have been made in such manner that they can be shipped safely and successfully wherever there is a common carrier. This has been recognized as an achievement in Barometry.

PRECISION THERMOMETER & INSTRUMENT COMPANY
1439 BRANDYWINE STREET - - - - - PHILADELPHIA, PA.

Improved
IRON BORING OXIDE

Gas Purification at Lowest Cost

Our Improved Iron Boring Oxide will *remove* the largest amount of H_2S *at lowest cost.* It has earned an enviable reputation for its *low resistance to flow of gas,* and uniform purifying value at different stages of its active life as well.

The outstanding features of Improved Iron Boring Oxide are

ACTIVITY—ENDURANCE
REVIVABILITY

Let Us Help Solve Your Purifying Problems

GAS PURIFYING MATERIALS CO.
Foot of Halsey Street Long Island City, N. Y.
Branch Yard to Serve New England
Providence, Rhode Island

FLANGE END

VALVES

We can furnish Valves for working pressures up to 1200 lbs. per sq. in.

Send for Circular 5

The LUDLOW
VALVE MANUFACTURING COMPANY
TROY, N. Y.

New York 62 Gold Street | Boston Tremont Bldg. | Philadelphia Harrison Building
Chicago The Rookery | Pittsburgh Oliver Bldg. | Kansas City R. A. Long Bldg.

Buyers' Reference Index

See page 117 for advertisements of these products

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The Gas Machinery Co.
Semet Solvay Engineering Corp.
Smoot Engineering Corp.
The U. G. I. Contracting Co.
AIR-LINE MASK
The Safety Gas Main Stopper Co.
AMMONIA CONCENTRATORS
Bartlett-Hayward Co.
Cruse-Kemper Co.
The Gas Machinery Co.
Isbell-Porter Co.
Riter-Conley Co.
Semet Solvay Engineering Corp.
The Stacey Bros. Gas Const. Co.
The Stacey Manufacturing Co.
John S. Unger.
Western Gas Construction Co.
AMMONIA CONCENTRATED LIQUOR PLANTS
Semet-Solvay Engineering Corp.
Western Gas Construction Co.
AMMONIA PIPE
National Tube Co.
AMMONIA RECOVERY APPARATUS
Semet-Solvay Engineering Corp.
Western Gas Construction Co.
AMMONIA STILLS
Bartlett-Hayward Co.
Cruse-Kemper Co.
The Gas Machinery Co.
Isbell-Porter Co.
The Koppers Construction Co.
Riter-Conley Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
Stacey Bros. Gas Constr. Co.
The Stacey Mfg. Co.
John S. Unger.
Western Gas Construction Co.
APPRAISALS & INVENTORIES
The U. G. I. Contracting Co.
ASBESTOS PACKING
Safety Gas Main Stopper Co.
ASH STORAGE BINS
Semet-Solvay Engineering Corp.
Western Gas Construction Co.
AUTOMATIC RAILWAYS
C. W. Hunt Co., Inc.
BAGS
Connelly Iron Sponge & Gov. Co.
Rubber & Canvas Covered
Safety Gas Main Stopper Co.
BAROMETERS
Precision Ther. & Inst. Co.
BENCHES
The Gas Machinery Co.
The Improved Equipment Co.
Isbell-Porter Co.
The Jersey City Refractories Co., Inc.
Russell Engineering Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
The U. G. I. Contracting Co.
Western Gas Construction Co.
BENCHES
Complete
Semet Solvay Engineering Co.
Walsh Fire-Clay Products Co.
West Gas Improvement Co.
BENZOL
Bartlett-Hayward Co.
Carl Still, Incorporated.
The Koppers Construction Co.
Semet Solvay Engineering Corp.
Western Gas Construction Co.
BLOWERS
The Connersville Blower Co.
P. H. & F. M. Roots Co.
BLOWERS & BOOSTERS
American Gas Furnace Co.
Gas Engineering Co.
The Gas Machinery Co.
P. H. & F. M. Roots Co.
Semet Solvay Engineering Corp.
The U. G. I. Contracting Co.
Western Gas Construction Co.
BLOW PIPES
American Gas Furnace Co.
BLUE GAS PLANT
Bartlett-Hayward Co.
Carl Still, Incorporated.
Gas Engineering Co.
The Gas Machinery Co.
The Improved Equipment Co.
Isbell-Porter Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
The U. G. I. Contracting Co.
Western Gas Construction Co.
BOILERS—WASTE HEAT
Bartlett-Hayward Co.
The Gas Machinery Co.
Isbell-Porter Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
Smoot Engineering Co.
The U. G. I. Contracting Co.
Western Gas Construction Co.
West Gas Improvement Co.
BRICK
Silica
E. J. Lavino & Co.
Walsh Fire-Clay Products Co.
BRICK, FIRE AND CHECKER
The Jersey City Refractories Co., Inc.
Russell Engineering Co.
Semet Solvay Engineering Corp.
The U. G. I. Contracting Co.
Walsh Fire-Clay Products Co.
Western Gas Construction Co.
BRUSHES, PIPE CLEANING
Safety Gas Main Stopper Co.
B. T. U. INDICATORS
The U. G. I. Contracting Co.
BURNERS (Industrial)
Fuel
The C. M. Kemp Mfg. Co.
BY-PRODUCT PLANTS
Bartlett-Hayward Co.
Carl Still, Incorporated.
The Gas Machinery Co.
The Koppers Construction Co.
Riter-Conley Co.
Semet Solvay Engineering Corp.
The U. G. I. Contracting Co.
Western Gas Construction Co.
West Gas Improvement Co.
CABLE RAILWAYS
C. W. Hunt Co., Inc.
CALORIMETERS
Alpha-Lux Company (Inc.).
American Meter Co.
Lambert Meter Co.
D. McDonald & Co.
Metric Metal Works
CARBURETTED WATER GAS PLANTS
Semet-Solvay Engineering Corp.
Western Gas Construction Co.
CARS
C. W. Hunt Co., Inc.
CAST IRON FITTINGS
James B. Clow & Sons
CEMENTS
The Jersey City Refractories Co. Inc.
Russell Engineering Co.
Walsh Fire-Clay Products Co.
CEMENTS, ACID-PROOF
Quigley Furnace Spec. Co., Inc.
CEMENTS, FIREBRICK
Quigley Furnace Spec. Co., Inc.
Walsh Fire-Clay Products Co.
CEMENTS, HIGH TEMPERATURE
Quigley Furnace Spec. Co., Inc.
CEMENTS
Refractory
E. J. Lavino & Co.
CHARGING MACHINERY
Bartlett-Hayward Co.
The Gas Machinery Co.
Isbell-Porter Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
Western Gas Const. Co.
CHUTES
C. W. Hunt Co., Inc.
CLAMPS (PIPE)
S. R. Dresser Manufacturing Co.
COALS
North American Coal Corp.
Westmoreland Coal Co.
COAL GAS APPARATUS
Bartlett-Hayward Co.
Carl Still, Incorporated.
The Gas Machinery Co.
Isbell-Porter Co.
The Koppers Construction Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
The U. G. I. Contracting Co.
Western Gas Construction Co.
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Semet-Solvay Engineering Corp.
Western Gas Construction Co.
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Bartlett-Hayward Co.
C. W. Hunt Co., Inc.
Isbell-Porter Co.
C. M. Keller
The Koppers Construction Co.
Riter-Conley Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
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Smoot Engineering Corp.
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CONVEYORS
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Warren Foundry & Pipe Co.
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Cast Iron Pipe Publicity Bureau
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FITTINGS
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Welsbach Co.
FLOORS, IRON, BRICK AND STEEL
Western Gas Construction Co
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James B. Clow & Sons
FLUES (Consuming) for Gas Range
Akme Flue, Inc.
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Cyanide
Muffle
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Safety Gas Main Stopper Co.
GAS MASKS
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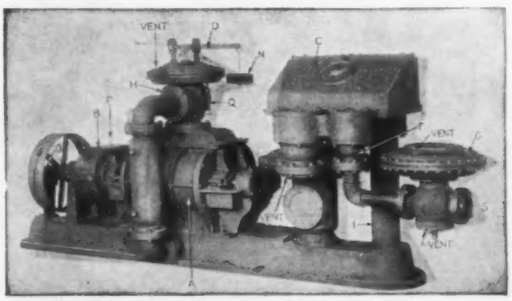

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Pressure-Recording
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Pittsburgh Equitable Meter Co.
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Connelly Iron Sponge & Gov. Co.
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Semet Solvay Engineering Corp
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District
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Groble Gas Regulator Co.
Helme & McIlhenny
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Estate Stove Co.
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Homestead Heater.
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Home Incinerator Co.

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Lambert Meter Co.
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Pittsburgh Equitable Meter Co.
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The Sprague Meter Co.
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Lambert Meter Co.
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Maryland Meter Works
The Sprague Meter Co.
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Gas Purifying Materials Co., Inc.
E. J. Lavino & Co.

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Jute
The Safety Gas Main Stopper Co.

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Soft Wood
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Soft Wood
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The Gas Machinery Co.
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Riter-Conley Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
R. D. Wood & Co.
The U. G. I. Contracting Co.
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Helme & McIlhenny
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Minneapolis Heat Regulator Co.
Pittsburgh Equitable Meter Co.
Reynolds Gas Regulator Co.
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Quigley Furnace Specialties Co., Inc.
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SCALES
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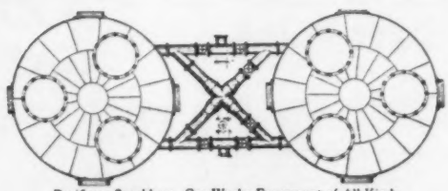

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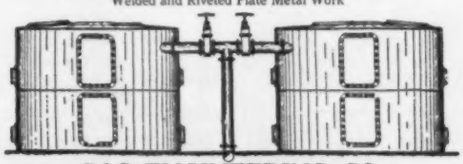

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SPECIAL MEETING

The United Gas Improvement Company

N. W. COR. BROAD AND ARCH STREETS

Philadelphia, Pa., July 14, 1927.

A special meeting of the stockholders of THE UNITED GAS IMPROVEMENT COMPANY will be held at the office of the Company, Northwest corner of Broad and Arch Streets, Philadelphia, on September 15, 1927, at 11 o'clock A. M. (Eastern Standard Time), for the purpose of considering and acting upon:

(1) amendments to the By-Laws of the Company increasing the number of Directors to twelve, including the President of the Company, who shall be ex-officio a member of the Board, and increasing the quorum to seven;

(2) the election of the three additional Directors;

(3) an increase in the authorized capital stock of the Company from 2,036,528 shares of the par value of $50 each to 2,130,088 shares of like par value; and

(4) in the event of such increase, authorizing the Board of Directors to issue (a) 53,082 shares in exchange and payment for 58,980 shares of the no par Common Stock of Day & Zimmermann, Incorporated, and 2,017 shares in exchange and payment for a like number of shares of the no par Preferred Stock of Day & Zimmermann, Incorporated, and (b) 38,461 shares in exchange and payment or 3,656 shares of the Common Stock of Hartford City Gas Light Company and for 204,481 shares of the no par Common Stock and 8,361 shares of the no par Preferred Stock of The Connecticut Gas & Coke Securities Company, which owns 218,324 shares of the capital stock of the New Haven Gas Light Company and 14,000 shares of the Common Stock of Hartford City Gas Light Company, each $25 par; and for the purpose of transacting such other business as may properly come before the meeting.

The stock transfer books will be closed from 3.00 P. M., September 2, 1927, until 10.00 A. M., September 16, 1927.

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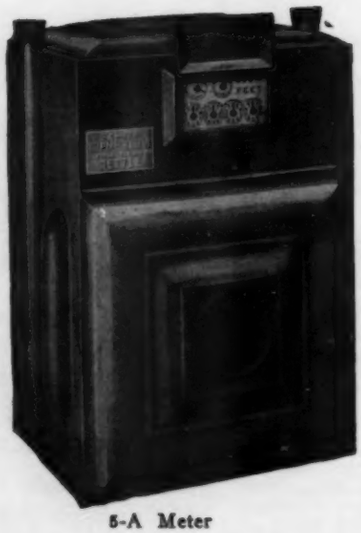

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10-A	375 cubic feet per hour
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